

U.S. Coast Guard Oceanographic Report

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REPORT No. 41

CG 373-41

Woods Hole Oceanographic Institution  
ATLAS - GAZETTEER COLLECTION

THE LABRADOR CURRENT BETWEEN  
HAMILTON INLET AND THE STRAIT OF BELLE ISLE

July 1968

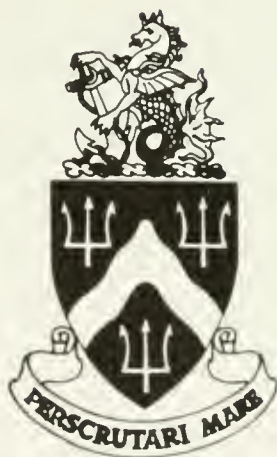
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# REPORT No. 41 CG 373-41

## THE LABRADOR CURRENT BETWEEN HAMILTON INLET AND THE STRAIT OF BELLE ISLE

July 1968

*By Henry S. Andersen*



WASHINGTON, D.C.





Frontispiece: USCGC EVERGREEN (WAGO 295)

## ABSTRACT

In July and August 1968, the Coast Guard Oceanographic Unit conducted a cruise aboard the USCGC EVERGREEN to monitor the movements and deterioration of an iceberg and associated meteorological and oceanographic conditions. Only the results of the oceanographic observations are presented. Four oceanographic sections were occupied across the Labrador Current between Hamilton Inlet and the Strait of Belle Isle. Analysis of the surface dynamic topography and selected isopycnal surfaces indicates strong topographic control of the currents in this area. The temperature distribution along the southernmost section suggests that the coldest component of the shelf band of the Labrador Current passed landward of the area under study, reinforcing previously published information that the shelf band of the Labrador Current bifurcates east of Hamilton Inlet.

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# The Labrador Current Between Hamilton Inlet and the Strait of Belle Isle

July 1968

Henry S. Andersen <sup>1</sup>

## INTRODUCTION

From 17 July to 16 August 1968, the Coast Guard Oceanographic Unit conducted a cruise aboard the USCGC EVERGREEN (WAGO 295) to collect information about iceberg drift and deterioration. This cruise was part of a continuing Coast Guard program to monitor the movements and deterioration of icebergs and associated meteorological and oceanographic conditions. The results of the oceanographic observations are presented here; iceberg drift and deterioration will be the subject of a future publication.

The USCGC EVERGREEN sailed from Boston, Massachusetts on 17 July 1968 en route to the area of operation in the western Labrador Sea between Hamilton Inlet and the Strait of Belle Isle (fig. 1). A medium-size drydock iceberg was located on 22 July and tracked until 9 August 1968. The trajectory of the iceberg was determined by using moored reference markers and periodic radar plotting. Concurrent with the tracking of the iceberg, direct current measurements were obtained by parachute drogues. A four-section hydrographic survey consisting of 48 Nansen stations was conducted during 22–26 July to determine the dynamic topography of the area. The USCGC EVERGREEN returned to Boston on 16 August.

Mr. Thomas C. Wolford, Oceanographer, served as Field Party Chief for this cruise. He was assisted by Lieutenant Commander Martin J. Moynihan, USCG, and Ensign Henry S. Andersen, USCGR. Technical assistance was provided by Danny L. Allen, Aerographer's Mate

Third Class; Michael L. Combs, Aerographer's Mate Third Class; Kenneth L. Mitchell, Sonarman Third Class; and Mr. Ronald B. Lorenz, student trainee.

## DATA COLLECTION AND PROCESSING

Temperature data was acquired with paired reversing thermometers mounted on Teflon-lined Nansen bottles. Salinities were determined on board with an inductive salinometer, using tables prepared by UNESCO/NIO (UNESCO, 1966) for computing salinity from the measured conductivity ratios. Depths of sampling were determined from the wire angle of the cast and pairs of unprotected and protected thermometers on selected Nansen bottles. Dynamic heights were computed on board using a PDP-8/S computer. Dynamic heights in water shallower than the reference level were computed in a manner described by Kollmeyer (1967).

The data presented in the Tables of Oceanographic Data are reproduced from a computer listing from the National Oceanographic Data Center (Cruise No. 31-1260). Anomalies of dynamic height in the listing were computed by NODC, but all discussion of dynamic heights in the text and related computations in this report were based on dynamic heights computed on board USCGC EVERGREEN or by the Coast Guard Oceanographic Unit.

## INTERPRETATION OF RESULTS

The Labrador Current comprises two distinct bands—one over the continental shelf and the other over the steepest part of the continental slope (Smith, et al., 1937). Near Hamilton Inlet, the inshore band over the continental shelf possesses colder ( $<1^{\circ}\text{C}$ ), fresher ( $<33.5\%$ ) wa-

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ter, while the offshore band over the slope possesses warmer ( $>1^{\circ}\text{C}$ ), more saline ( $>34.0\%$ ) water, greater velocities, and a greater thickness.

A chart of sea surface dynamic topography relative to 600 decibars was prepared for the survey area to estimate the component of motion of the study iceberg resulting from ocean currents. Defant's method of estimating the level of no motion by comparing the differences in dynamic height between pairs of stations at varying pressures (Defant, 1961) was applied to several of the deeper stations in the area surveyed, and 600 decibars was chosen as a reference level. The 600 decibar level also was a suitable compromise between the deeper levels previously used and shallower levels desired to reduce errors in the integration procedure in shallow waters. Defant (1961), on a chart of the entire Atlantic Ocean, presented a depth exceeding 1900 meters as a suitable reference level for the survey area. Previous work done by the Oceanographic Unit in the region utilized a reference level of 1500 decibars.

In the area surveyed, the slope band of the Labrador Current appears on the chart of dynamic topography (fig. 2) as a concentration of contours near the eastern ends of the occupied sections. The shelf band is exhibited most clearly by the presence of negative-temperature water centered at about 75 meters (figs. 11, 13, 15, and 17) and appears to be split into several bands.

The trajectory of the iceberg under study was generally consistent with the dynamic topography of the sea surface relative to 600 decibars (fig. 2) until 4 August when it began moving westward against the geopotential gradient of an anticyclonic gyre. On 6 August the iceberg began moving northwestward against the circulation of the gyre. This seemingly anomalous motion probably is the result of a change in the wind observed at this time. The wind shifted from about  $320^{\circ}$  at approximately 7 knots to  $170^{\circ}$  at approximately 15 knots and continued to blow at this velocity for the next 28 hours. The final part of the trajectory up to 1900Z 9 August is difficult to explain in terms of the observed winds or dynamic topography. The relationship between this portion of the iceberg's trajectory and the dynamic topography should be inferred with caution because this

portion of the trajectory occurred midway between two lines of stations (sections B and C) and two weeks after the completion of the oceanographic survey.

Because of the complexity of the surface dynamic topography and the uncertainty of the dynamic method in regions shallower than the reference level, an investigation of the region by isentropic analyses was conducted (figs. 3–10). It was recognized that in a comparatively shallow region such as the study area, where vertical mixing probably is extensive, isentropic analysis is not an entirely suitable tool of investigation either, but the analysis was performed to see if it would corroborate the results attained by the dynamic method.

Comparison of the variation of depth of the 27.00  $\sigma_t$  and 27.25  $\sigma_t$  surfaces (figs. 8 and 10) with the sea surface dynamic topography relative to 600 decibars (fig. 2) indicates agreement in the basic features of the current regime. Although this agreement might be expected because the distribution of sea surface dynamic heights and the configuration of density surfaces are both functions of the mass distribution, it is still encouraging that such agreement was found in view of the approximations used to integrate the dynamic height along the shoaling sea bottom.

The chart of dynamic topography (fig. 2) indicates a weak cyclonic gyre centered on the third station (station 10349) from the western end of section C. That this gyre plays a more important role in the circulation of the area than is apparent from its manifestation at the sea surface may be appreciated after examining the distribution of density along section C (fig. 21). A doming of the density surfaces, with its axis inclined to the west, arises out of a bathymetric depression centered on station 10350. The dome is associated with a cyclonic vortex whose speed of rotation below the pycnocline (located at about 20 meters) decreases with depth.

The vortex appears to be a direct consequence of a depression in the shelf at  $53^{\circ}\text{N}$   $53.5^{\circ}\text{W}$  (fig. 1), near stations 10348–51 (figs. 15, 16, and 21). The bathymetric chart suggests that the sill depth is greater to the east of this depression north of section C. Vertical sections of temperature, salinity, and density through the bathymetric depression (figs. 15, 16, and 21) revealed an incursion into the depression

of slope water that is warmer, more saline, and denser than the adjacent shelf water. From comparison with sections B and D, it may be inferred that the lens of warm, salty water in the depression is the result of an influx of slope water between sections B and C.

Further evidence of the effect of the bathymetry upon the circulation in this area is afforded by the zigzag near 53°N 52°W of the slope component of the Labrador Current (figs. 2 and 10). This feature coincides with a northward projecting spur in the bottom topography (fig. 1). The 27.25  $\sigma_t$  surface, which is 200 to 300 meters shallower than the bottom, possesses relief that is the approximate inverse of the bottom topography. As would be expected, the successively

shallower  $\sigma_t$  surfaces (figs. 4, 6, and 8) exhibit a decreasing correlation with the bottom topography.

The coldest water observed (−1.62°) occurred at stations 10370 and 10371 at the western end of section D (fig. 17). The absence of such extreme temperatures at the other more northern sections suggests that the source of this cold water was a filament of the Labrador Current inshore of the sections occupied by USCGC EVERGREEN. Bullard, et al. (1961), mention a division of the Labrador Current by the shoal off Hamilton Inlet. The bottom topography (fig. 1) includes a rise (<100 fathoms) near 54° 45'N, 55°15'W which may be responsible for this division.

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- Bullard, R. P., R. P. Dinsmore, A. P. Franceschetti, P. A. Morrill, and F. M. Soule (1961) Report of the International Ice Observation and Ice Patrol Service in the North Atlantic Ocean—Season of 1960, U.S. Treasury Department—Coast Guard Bulletin No. 46, 114 pp.
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- Smith, E. H., F. M. Soule, and O. Mosby (1937) The Marion and General Greene Expeditions to Davis Strait and Labrador Sea. Scientific results, part 2, physical oceanography, U.S. Treasury Department—Coast Guard Bulletin No. 19, 259 pp.
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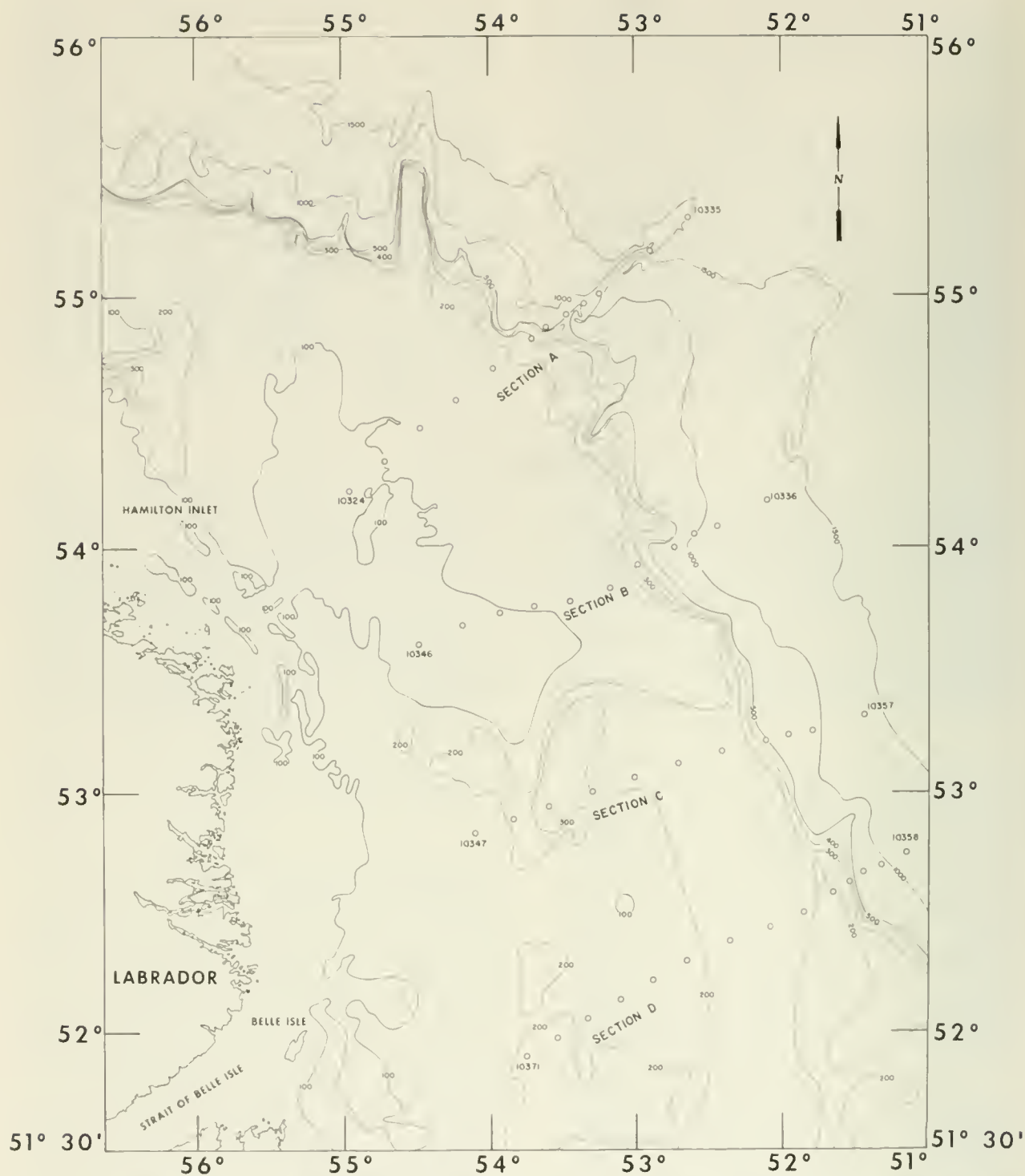


Figure 1. Bathymetric chart of survey area in the western Labrador Sea between Strait of Belle Isle and Hamilton Inlet. Contour interval is 100 fathoms to a depth of 500 fathoms and 500 fathoms thereafter. The chart is adapted from U.S. Naval Oceanographic Office charts BC0610N and BC0611N. Station positions are included.

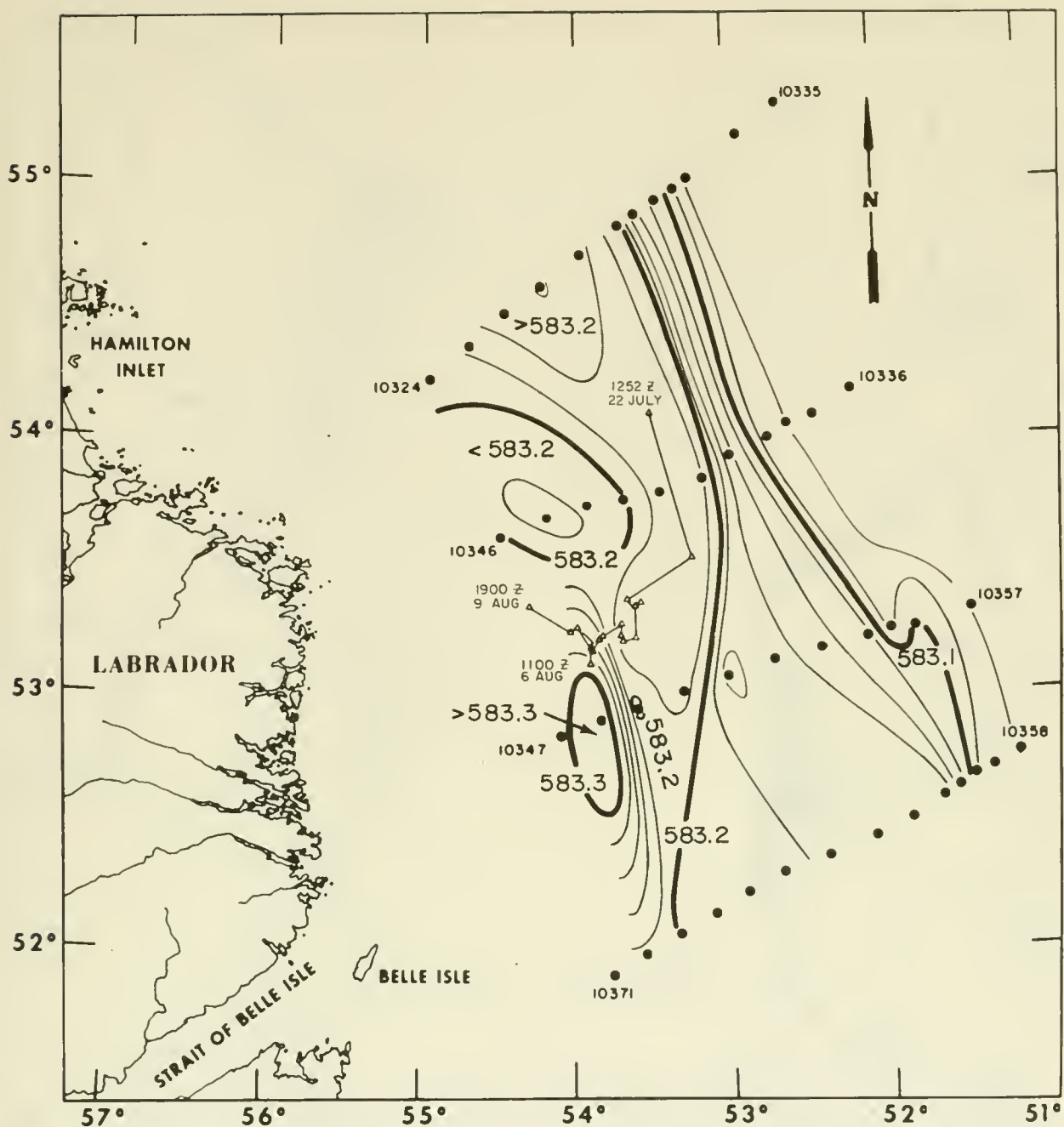


Figure 2. Sea surface dynamic topography (dynamic meters) relative to 600 decibars, 22-26 July 1968. Contour interval is 0.02 dynamic meters. Track line indicates trajectory of iceberg under study.

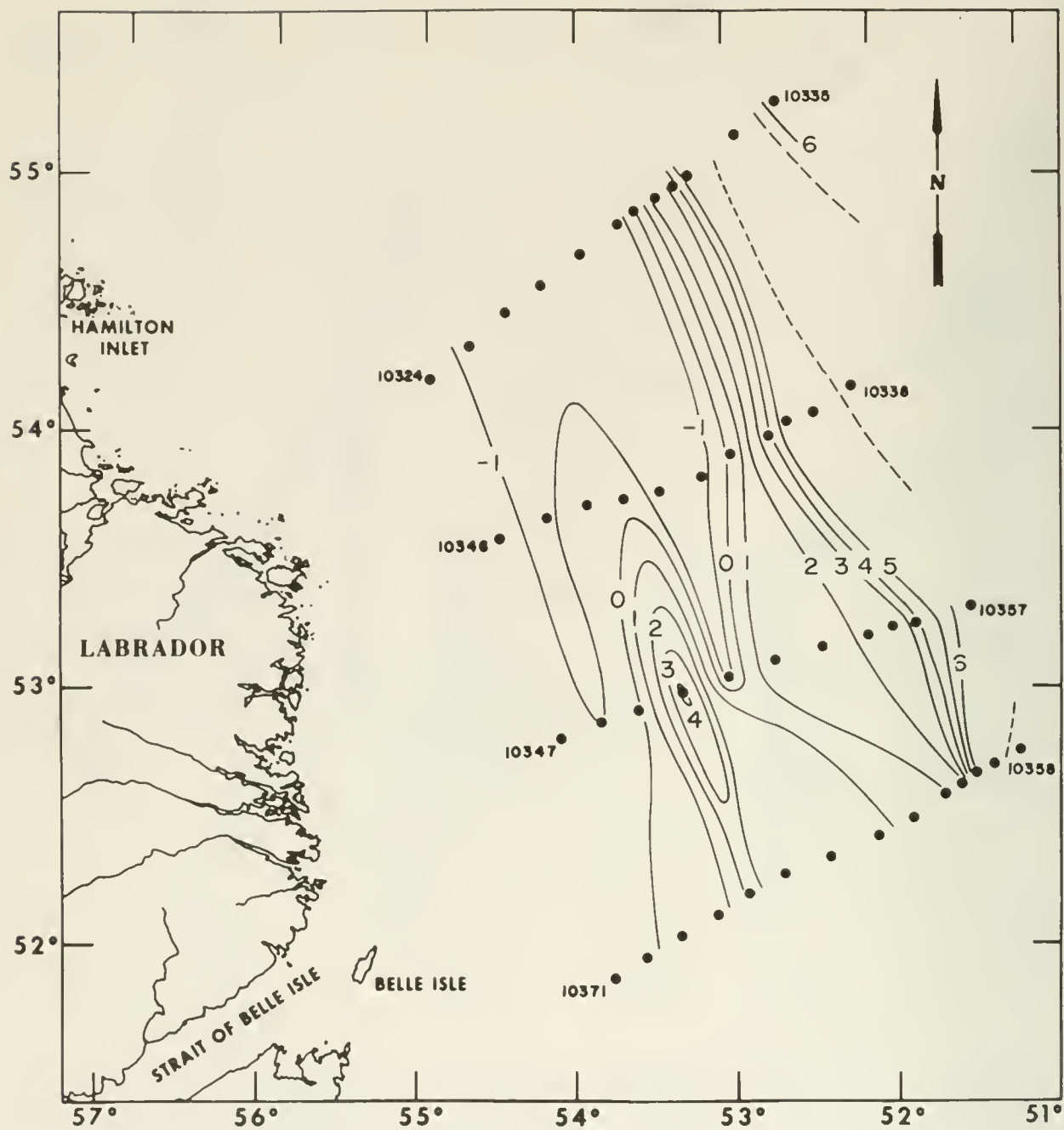


Figure 3. Distribution of temperature (°C) upon the 26.50  $\sigma_t$  surface, 22-26 July 1968. Dashed line indicates intersection of the 26.50  $\sigma_t$  surface with the sea surface.

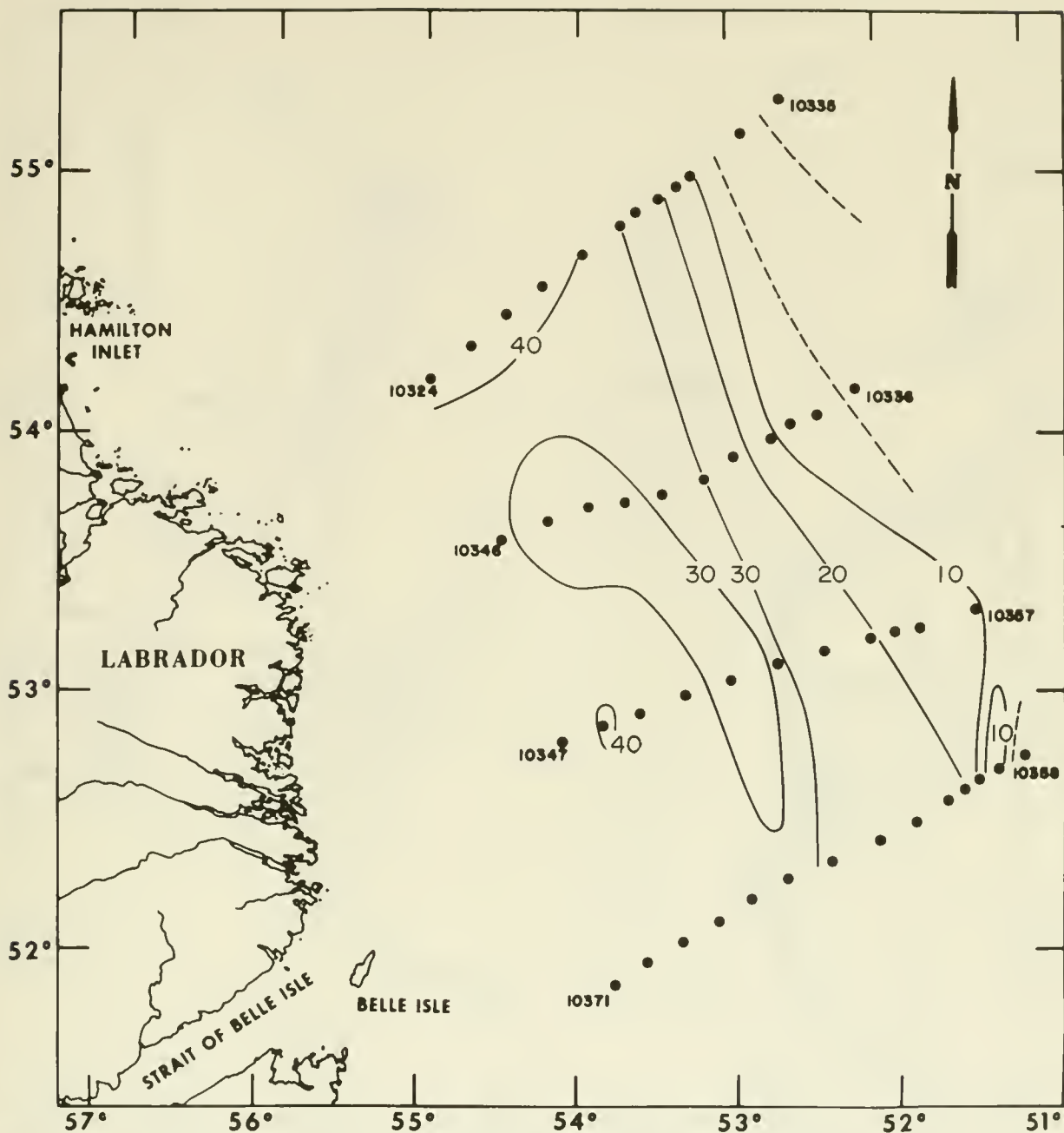


Figure 4. Depth (meters) of the 26.50  $\sigma_t$  surface, 22–26 July 1968. Dashed line indicates intersection of the 26.50  $\sigma_t$  surface with the sea surface.



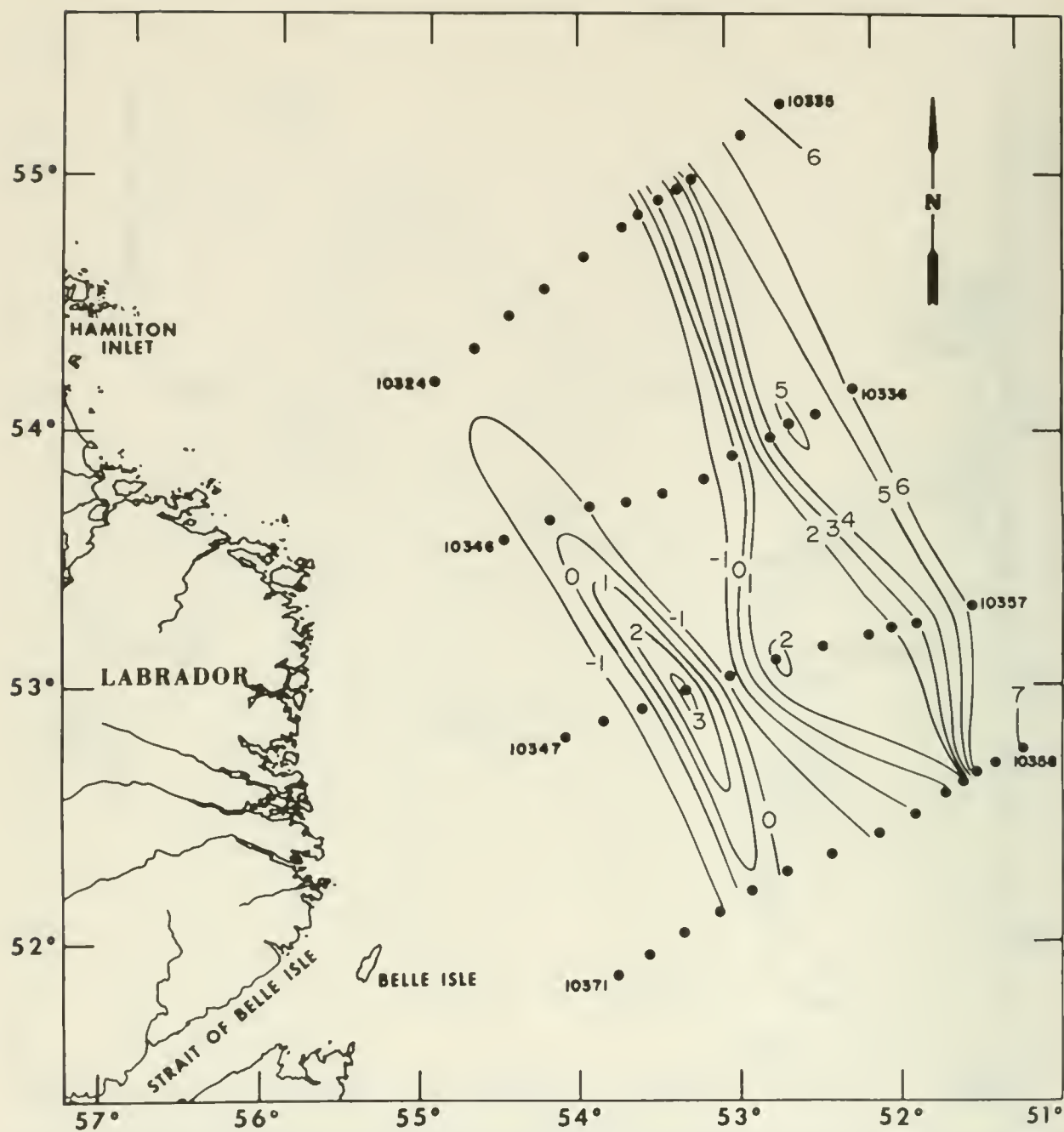


Figure 5. Distribution of temperature (°C) upon the 26.75  $\sigma_t$  surface, 22–26 July 1968.

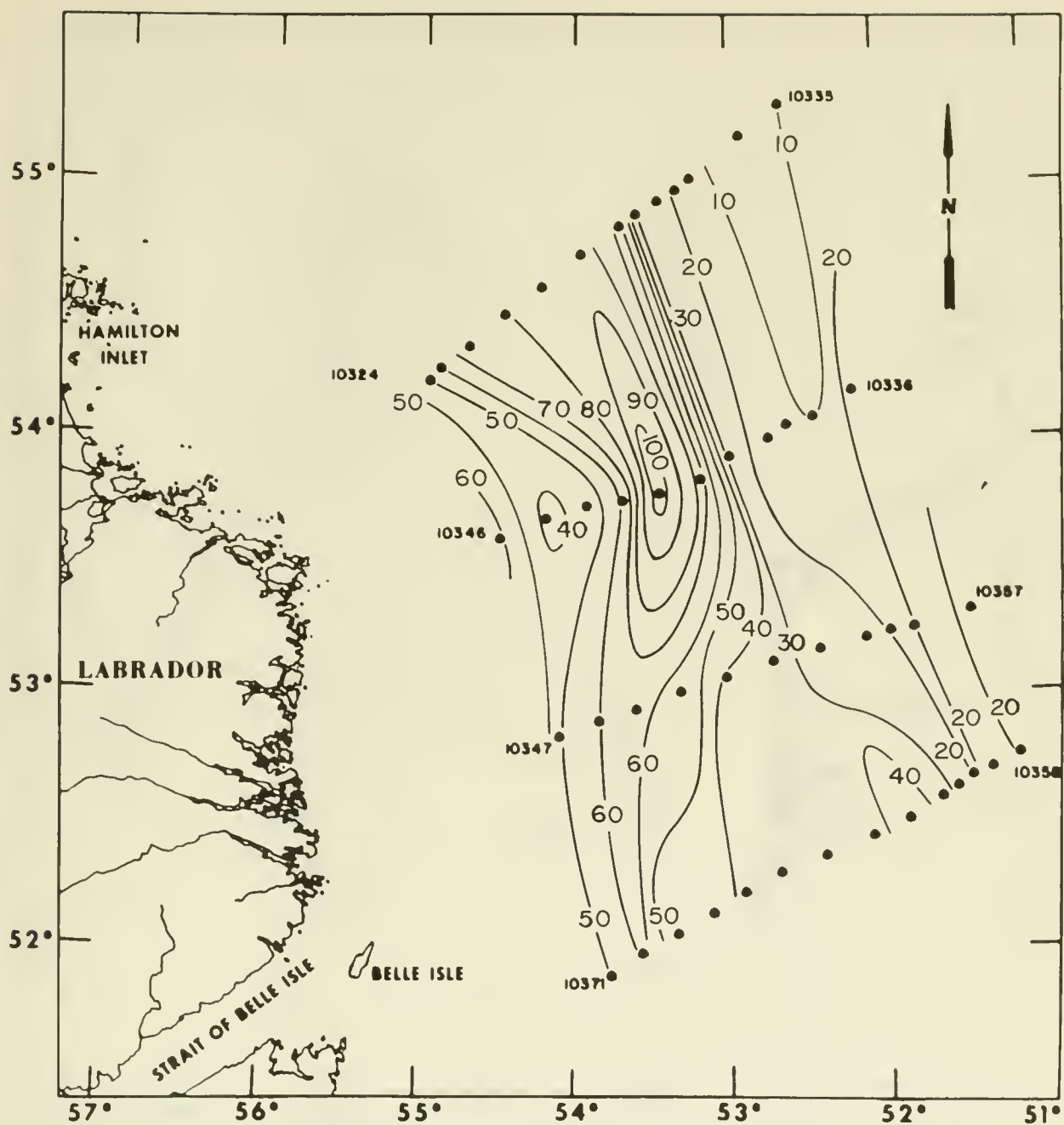


Figure 6. Depth (meters) of the 26.75  $\sigma_t$  surface, 22-26 July 1968.

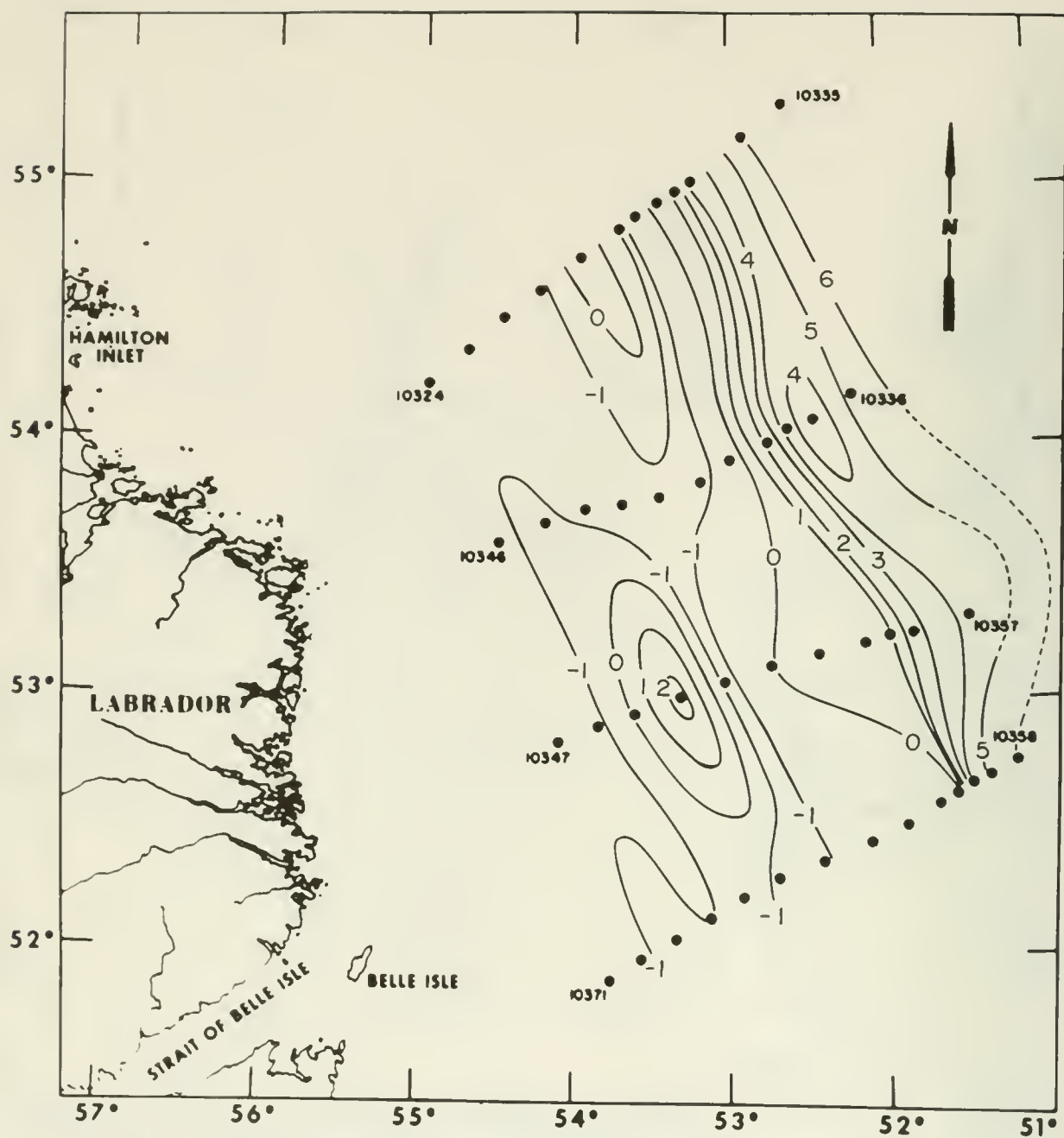


Figure 7. Distribution of temperature (°C) upon the 27.00  $\sigma_t$  surface, 22-26 July 1968.

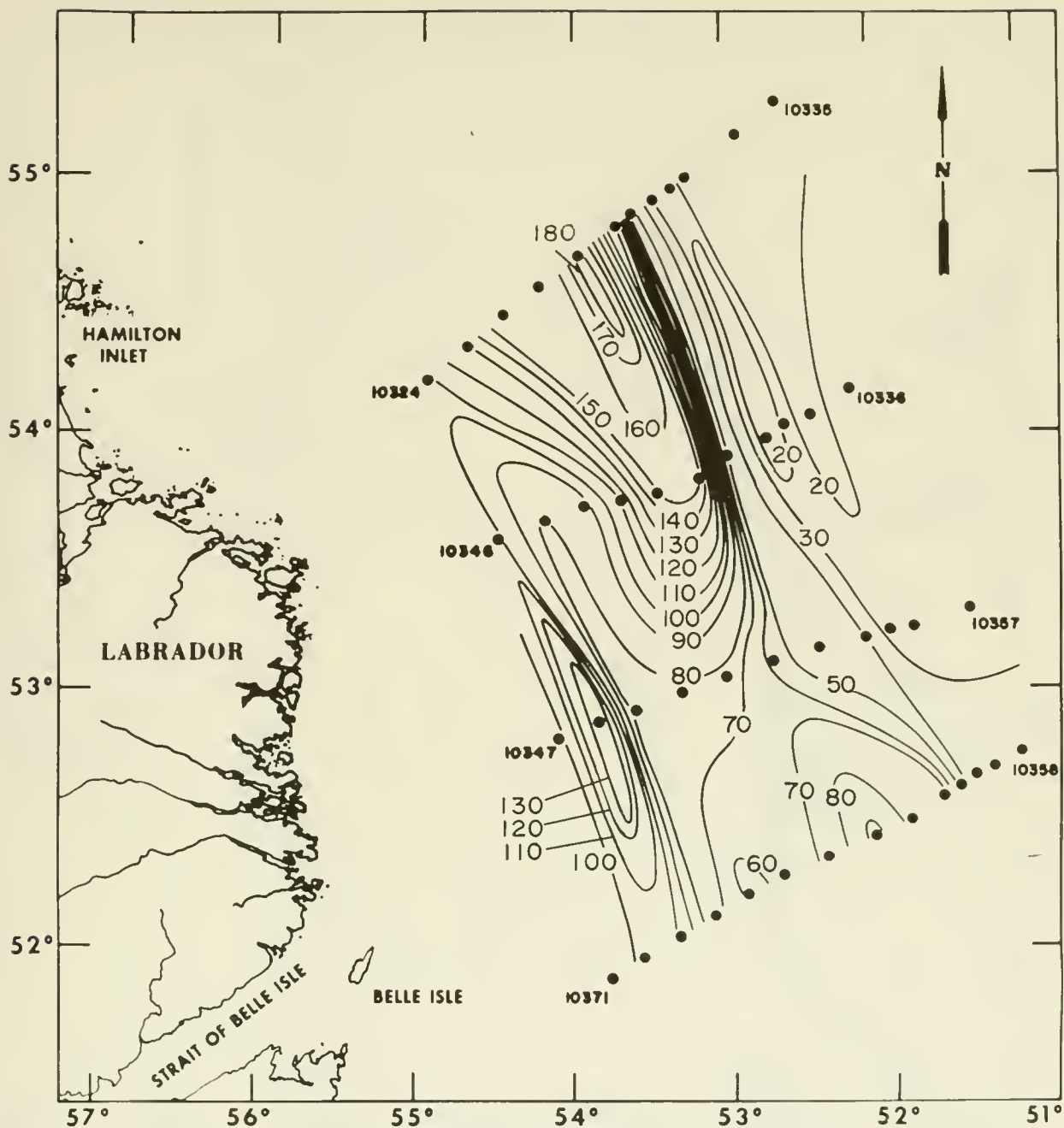


Figure 8. Depth (meters) of the 27.00  $\sigma_t$  surface, 22-26 July 1968.

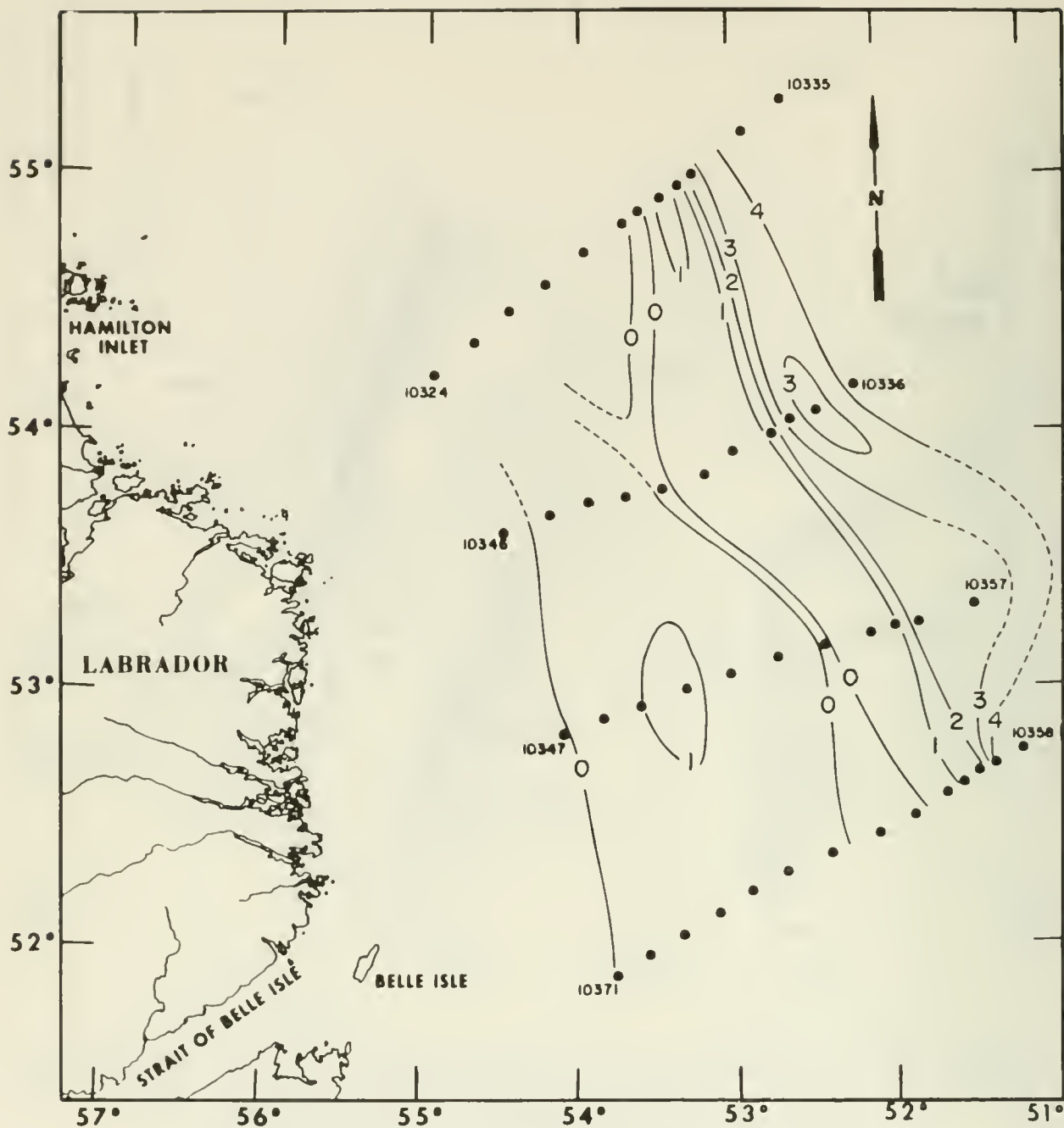


Figure 9. Distribution of temperature (°C) upon the 27.25  $\sigma_t$  surface, 22-26 July 1968.

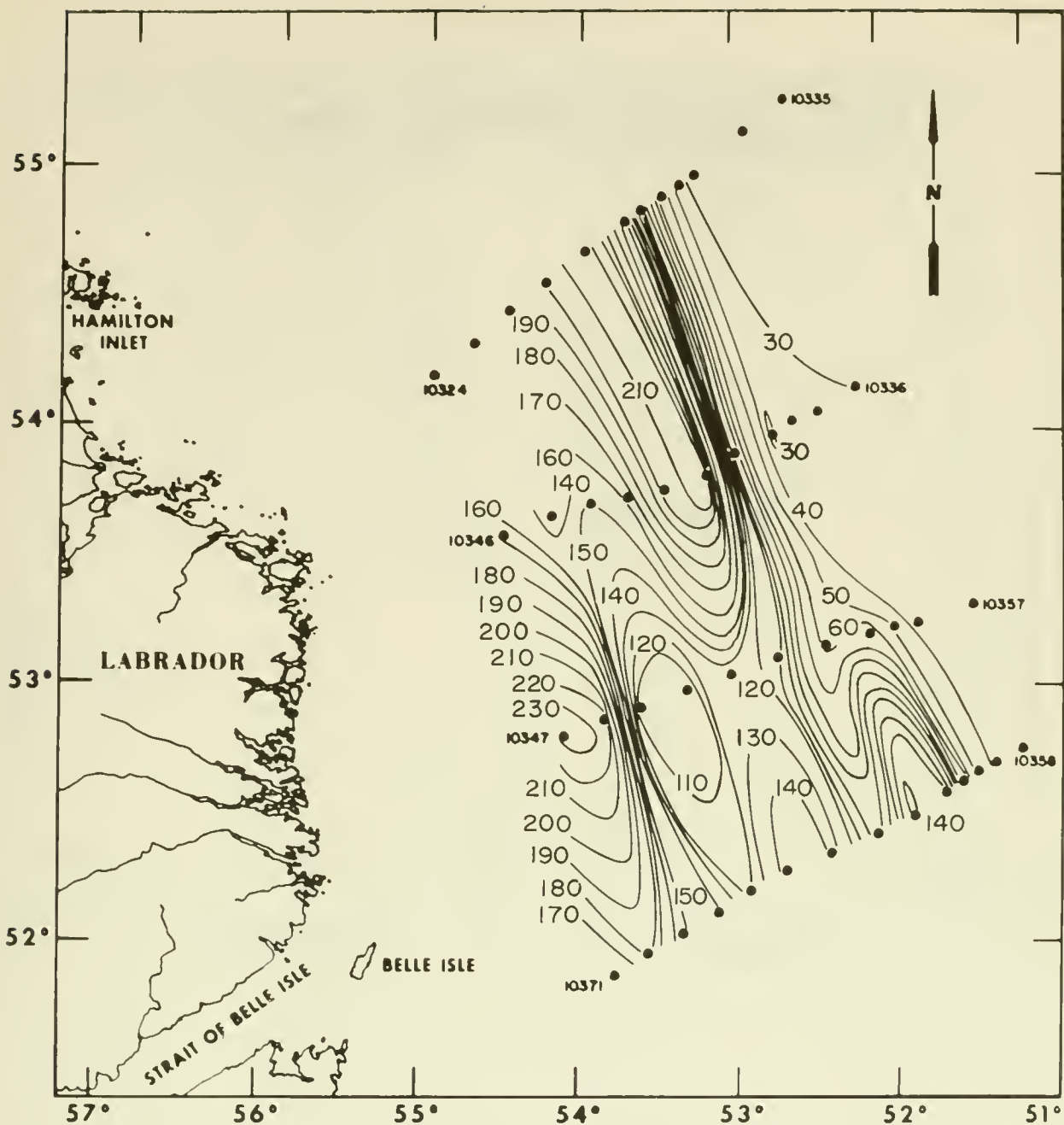


Figure 10. Depth (meters) of the 27.25  $\sigma_t$  surface, 22-26 July 1968.

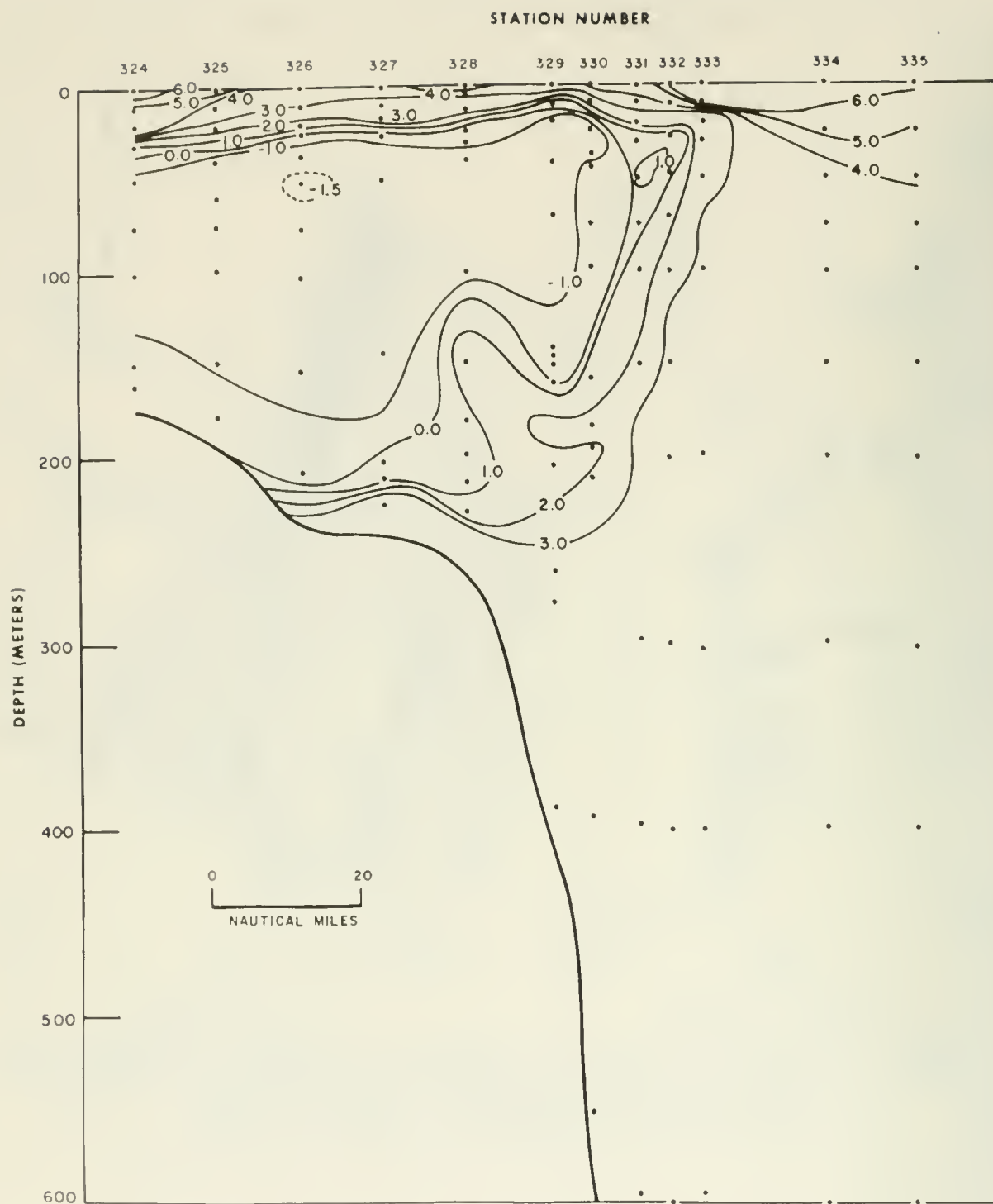


Figure 11. Temperature ( $^{\circ}\text{C}$ ) profile for section A, 22-23 July 1968.



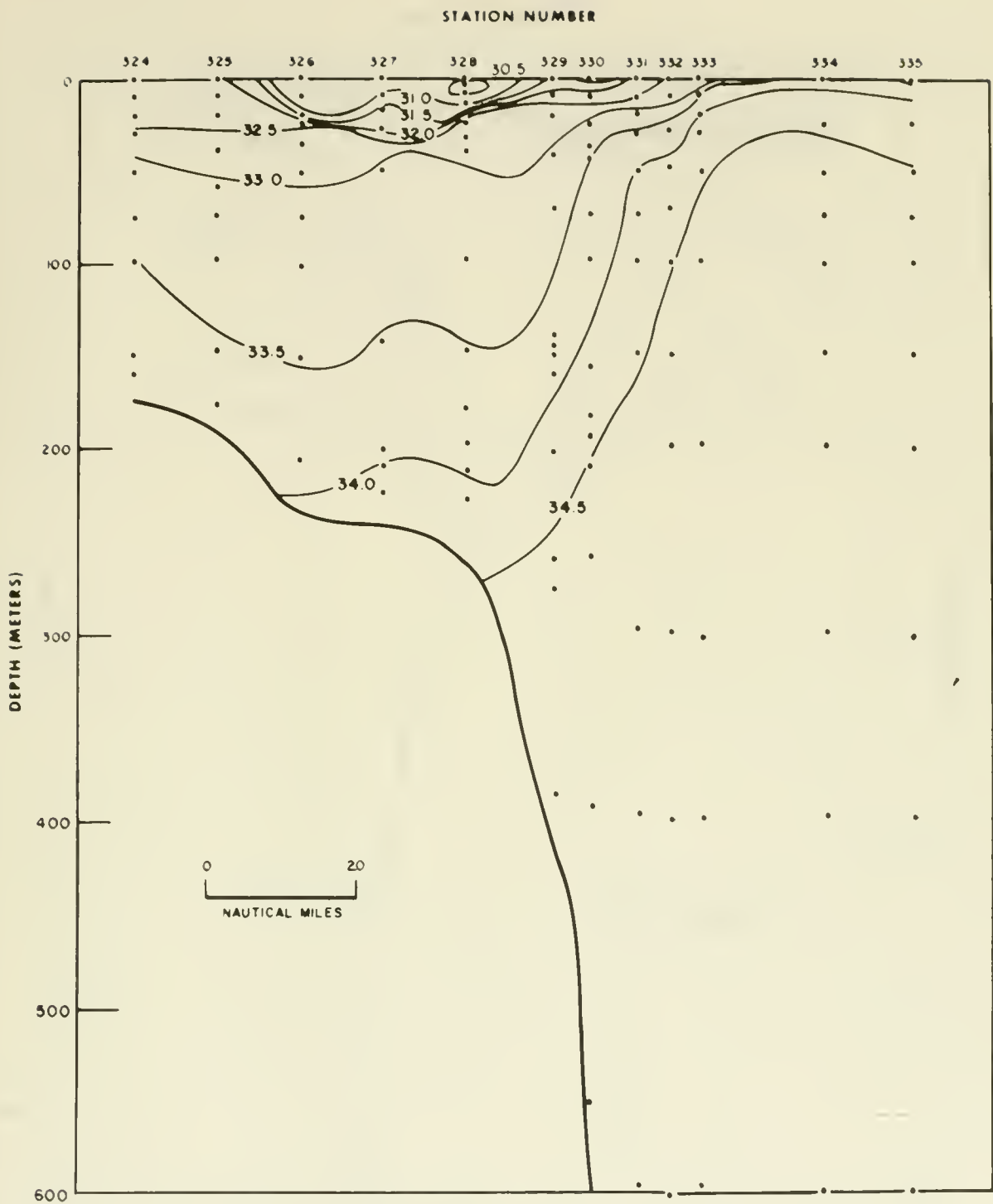


Figure 12. Salinity (‰) profile for section A, 22-23 July 1968.

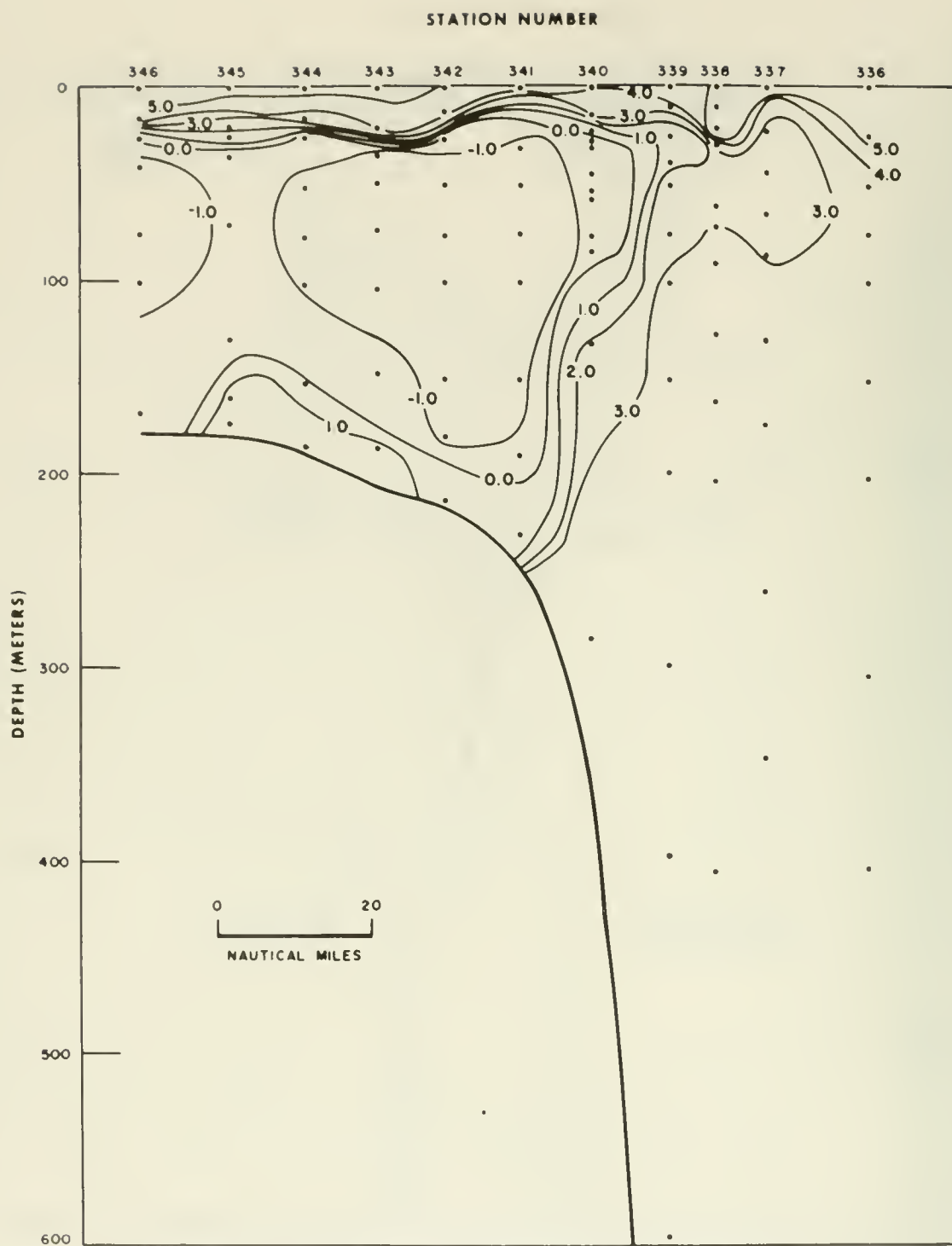


Figure 13. Temperature ( $^{\circ}\text{C}$ ) profile for section B, 24 July 1968.

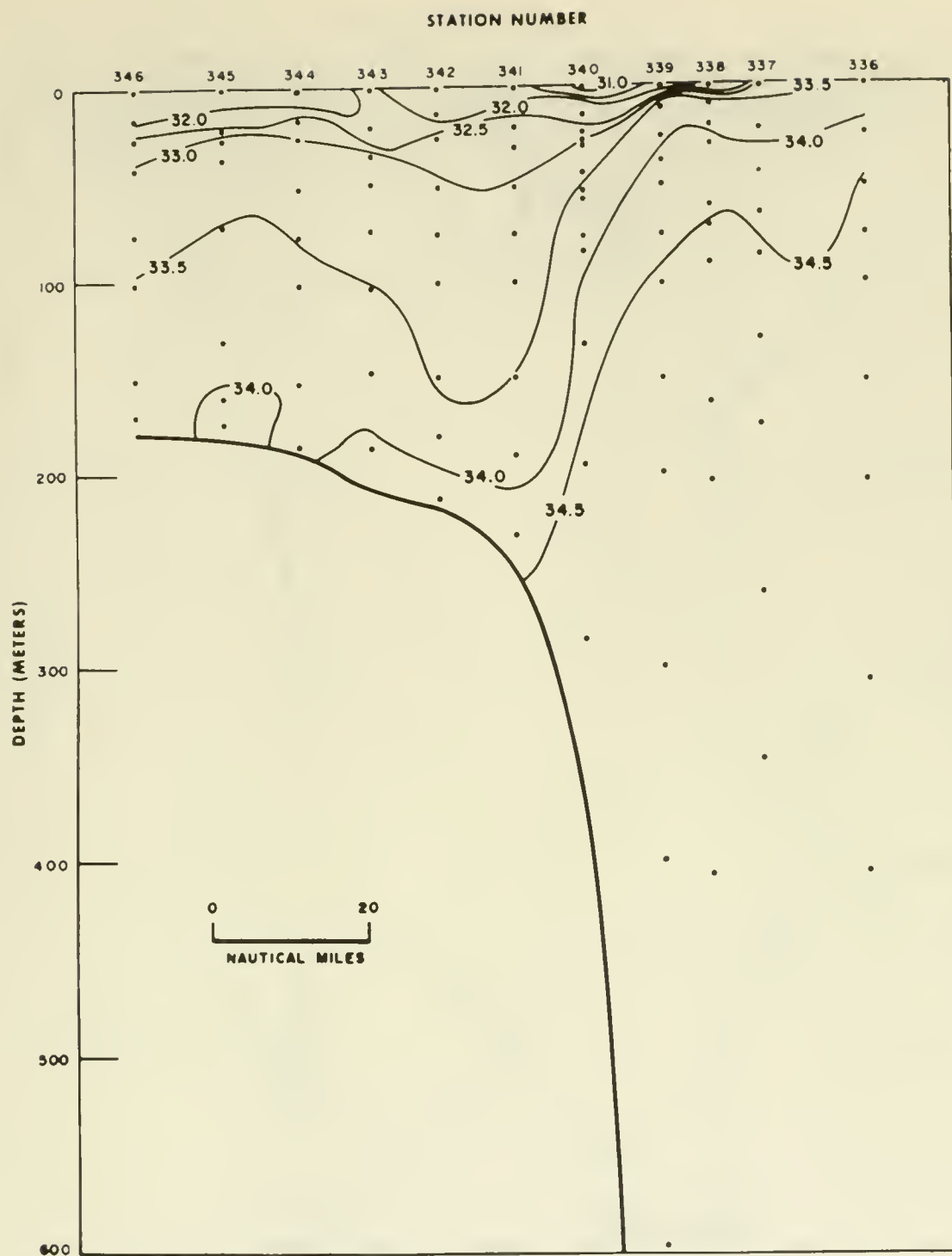


Figure 14. Salinity (‰) profile for section B, 24 July 1968.

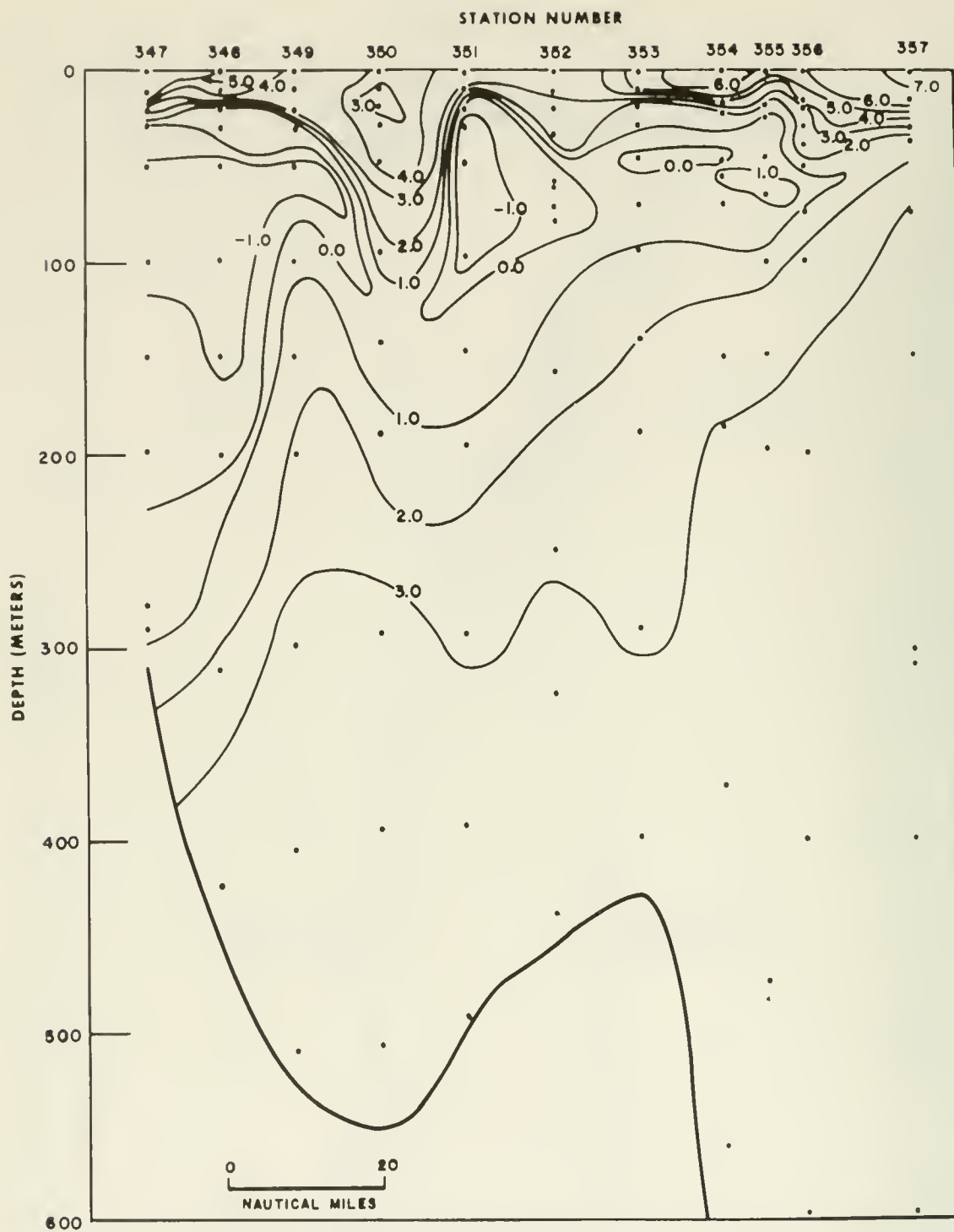


Figure 15. Temperature ( $^{\circ}\text{C}$ ) profile for section C, 25 July 1968.

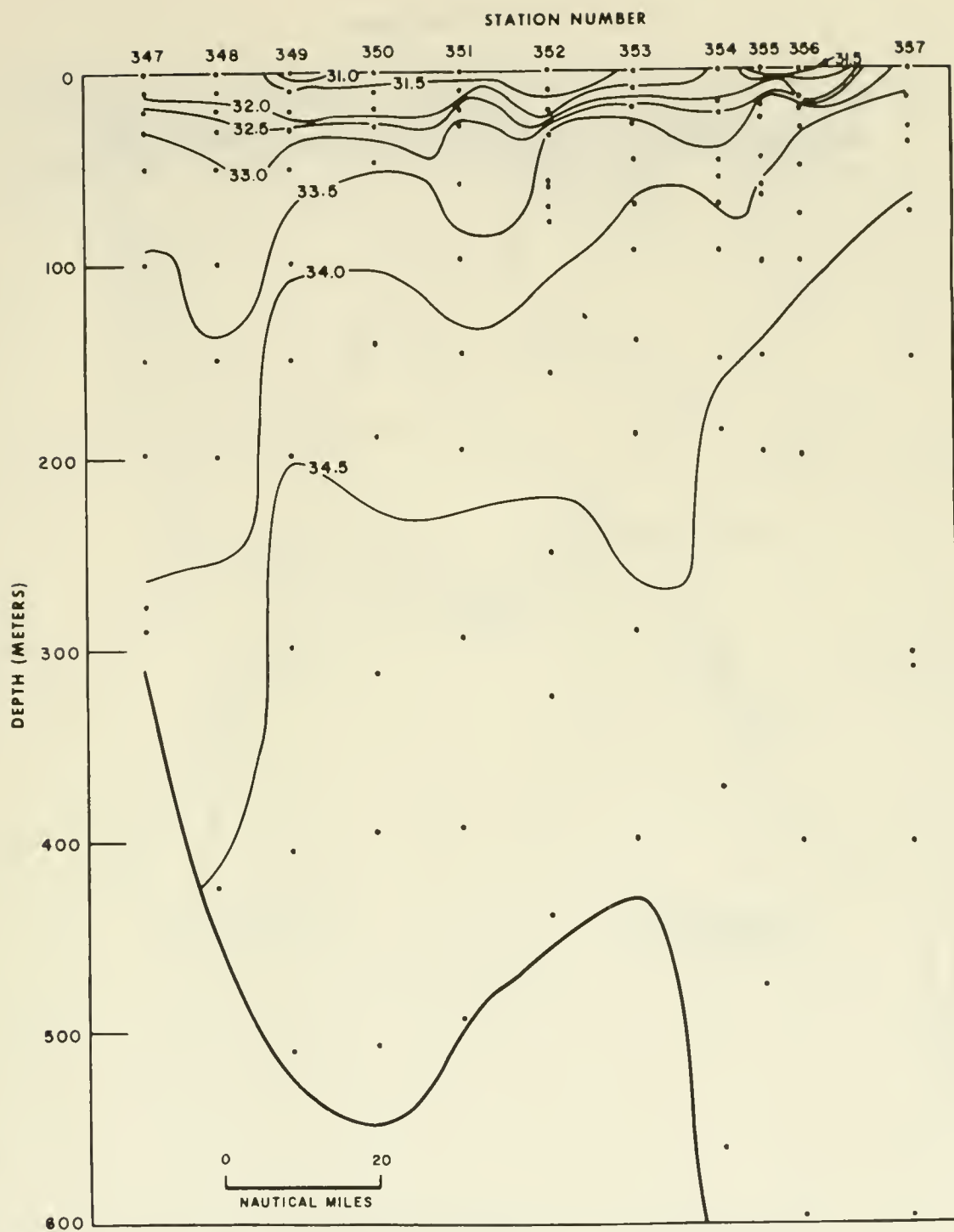


Figure 16. Salinity (%) profile for section C, 25 July 1968.

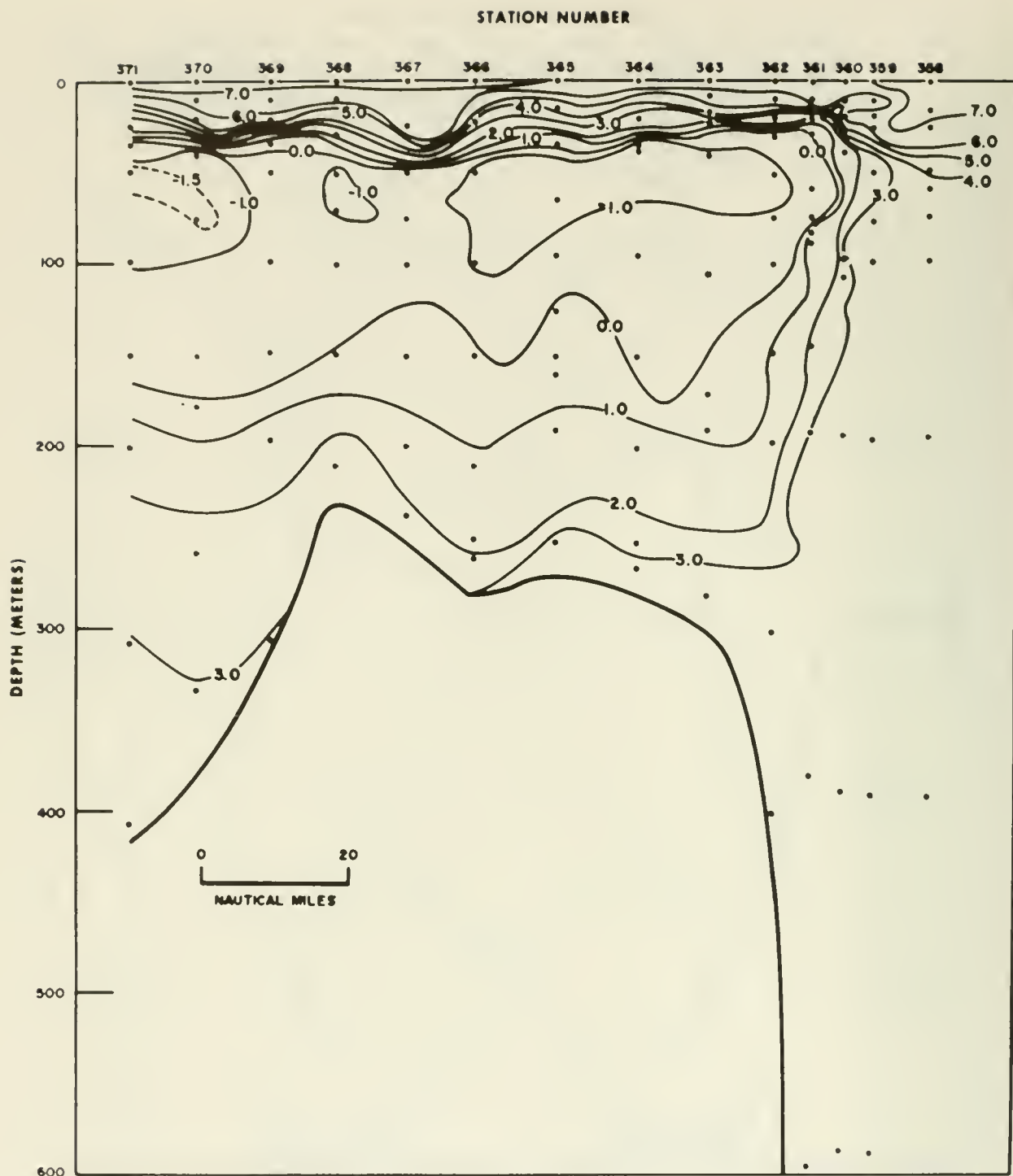


Figure 17. Temperature ( $^{\circ}\text{C}$ ) profile for section D, 26 July 1968.

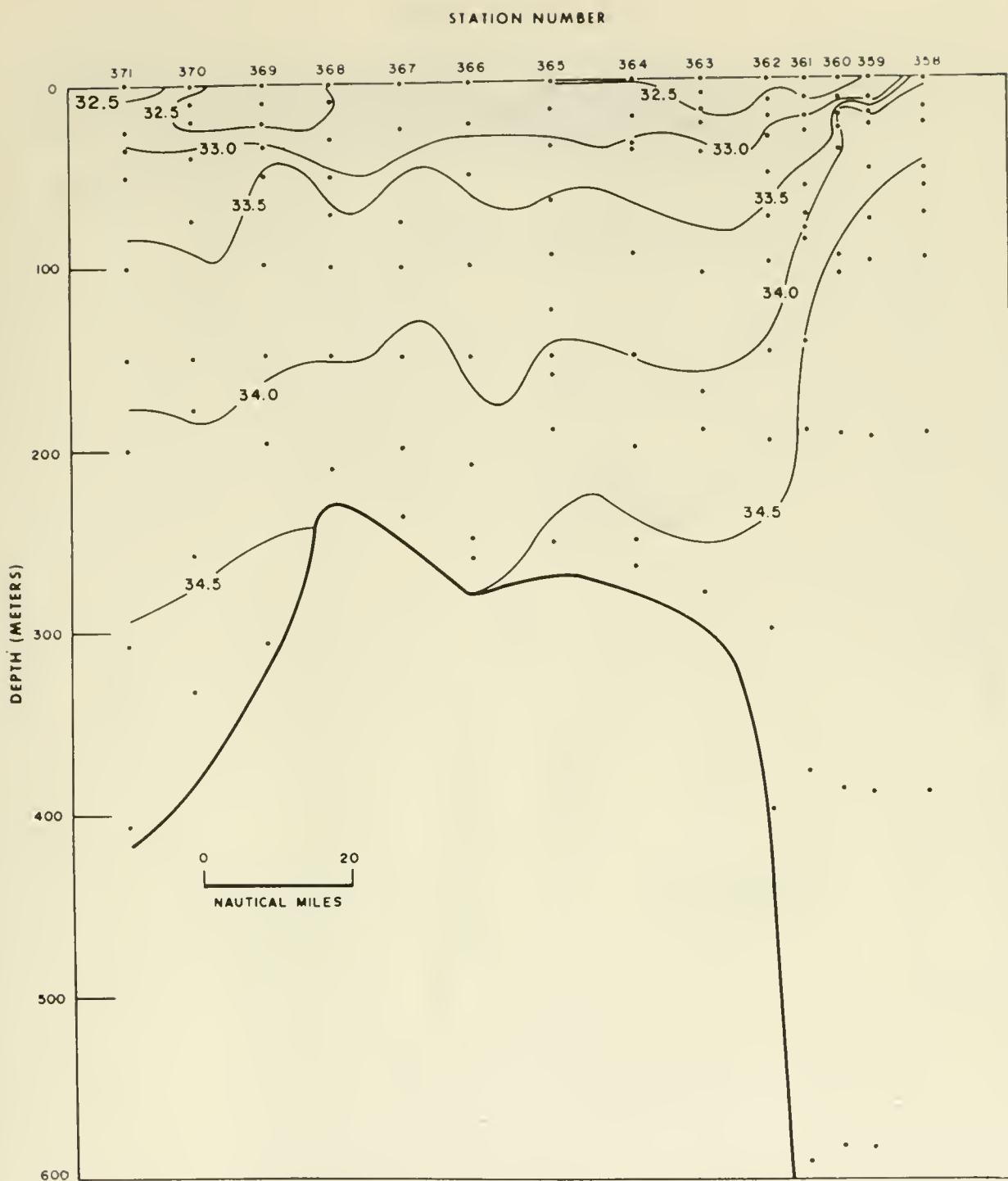


Figure 18. Salinity (%) profile for section D, 26 July 1968.



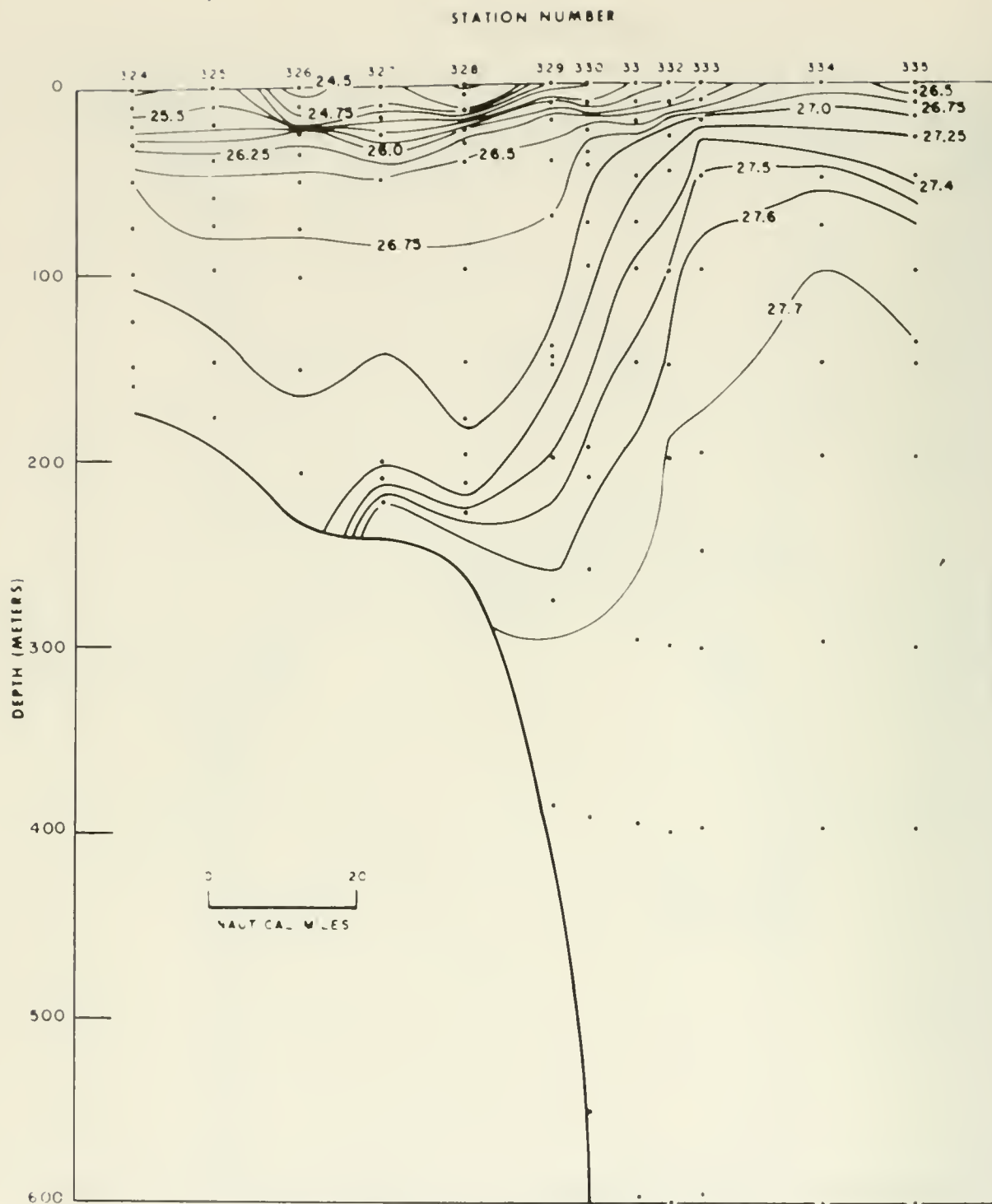


Figure 19. Density ( $\sigma_t$ ) profile for section A, 22-23 July 1968. Contour interval is 0.25 for values up to 27.25 and 0.10 for values greater than 27.40.

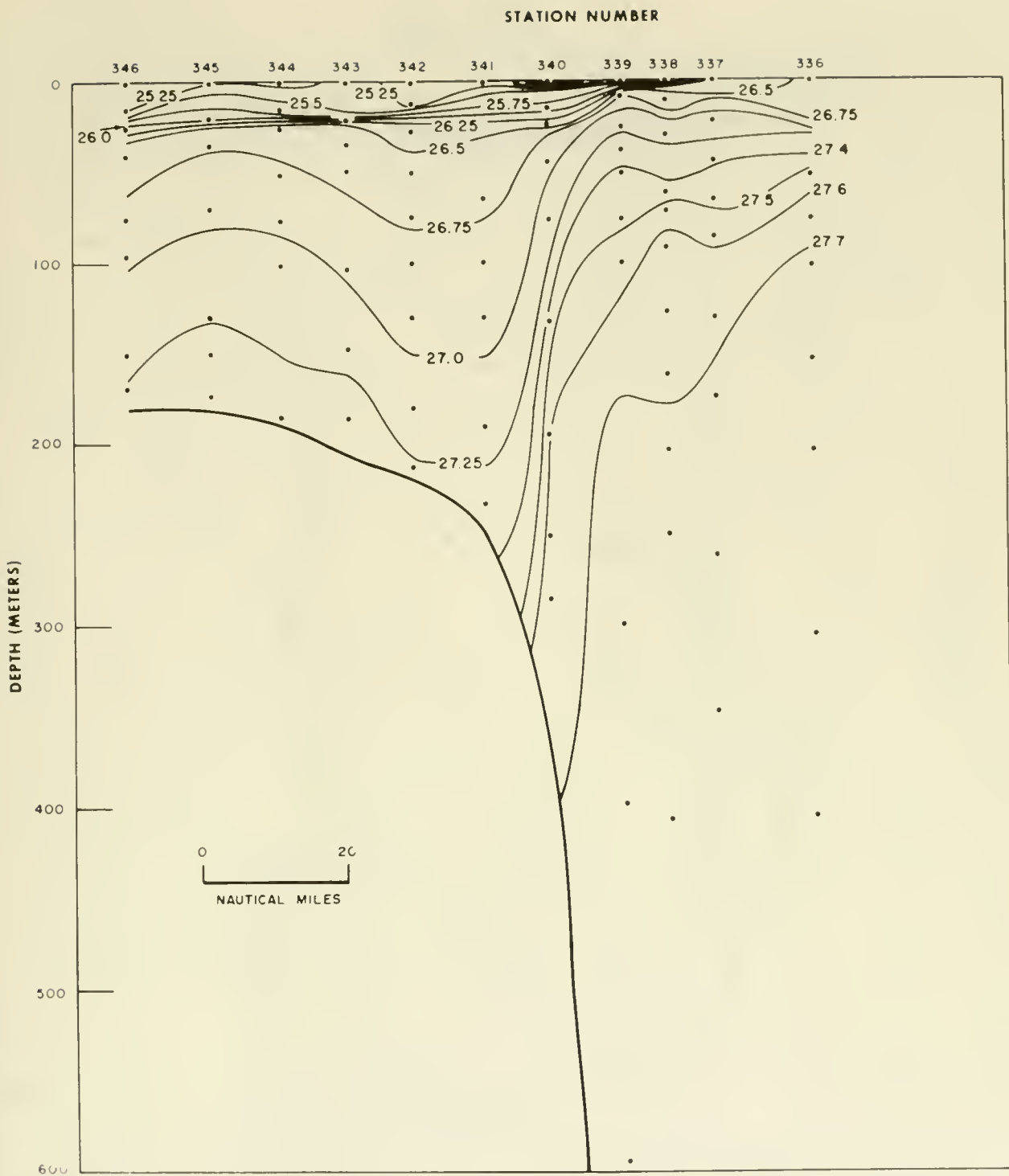


Figure 20. Density ( $\sigma_t$ ) profile for section B, 24 July 1968. Contour interval is 0.25 for values up to 27.25 and 0.10 for values greater than 27.40.

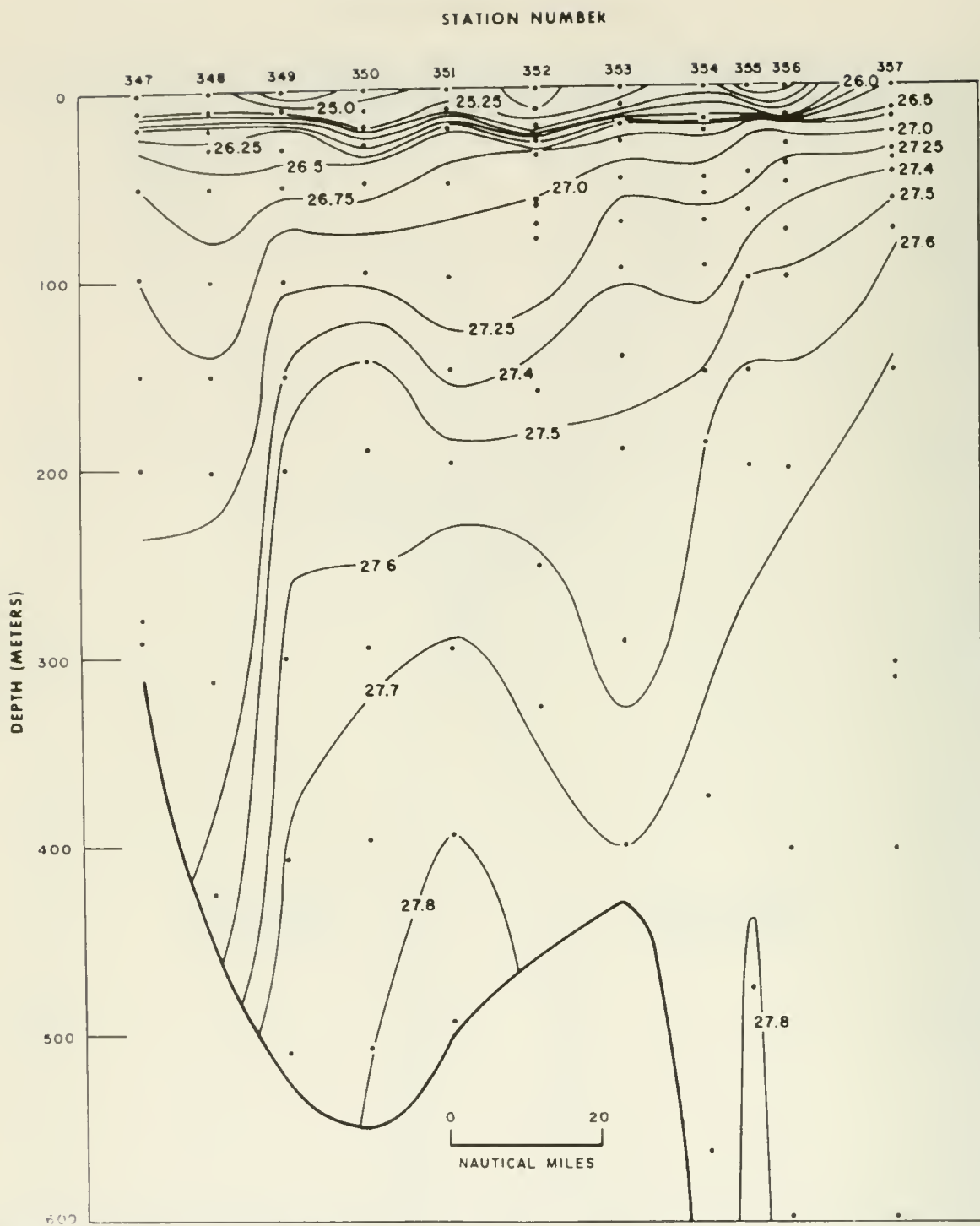


Figure 21. Density ( $\sigma_t$ ) profile for section C, 25 July 1968. Contour interval is 0.25 for values up to 27.25 and 0.10 for values greater than 27.40.

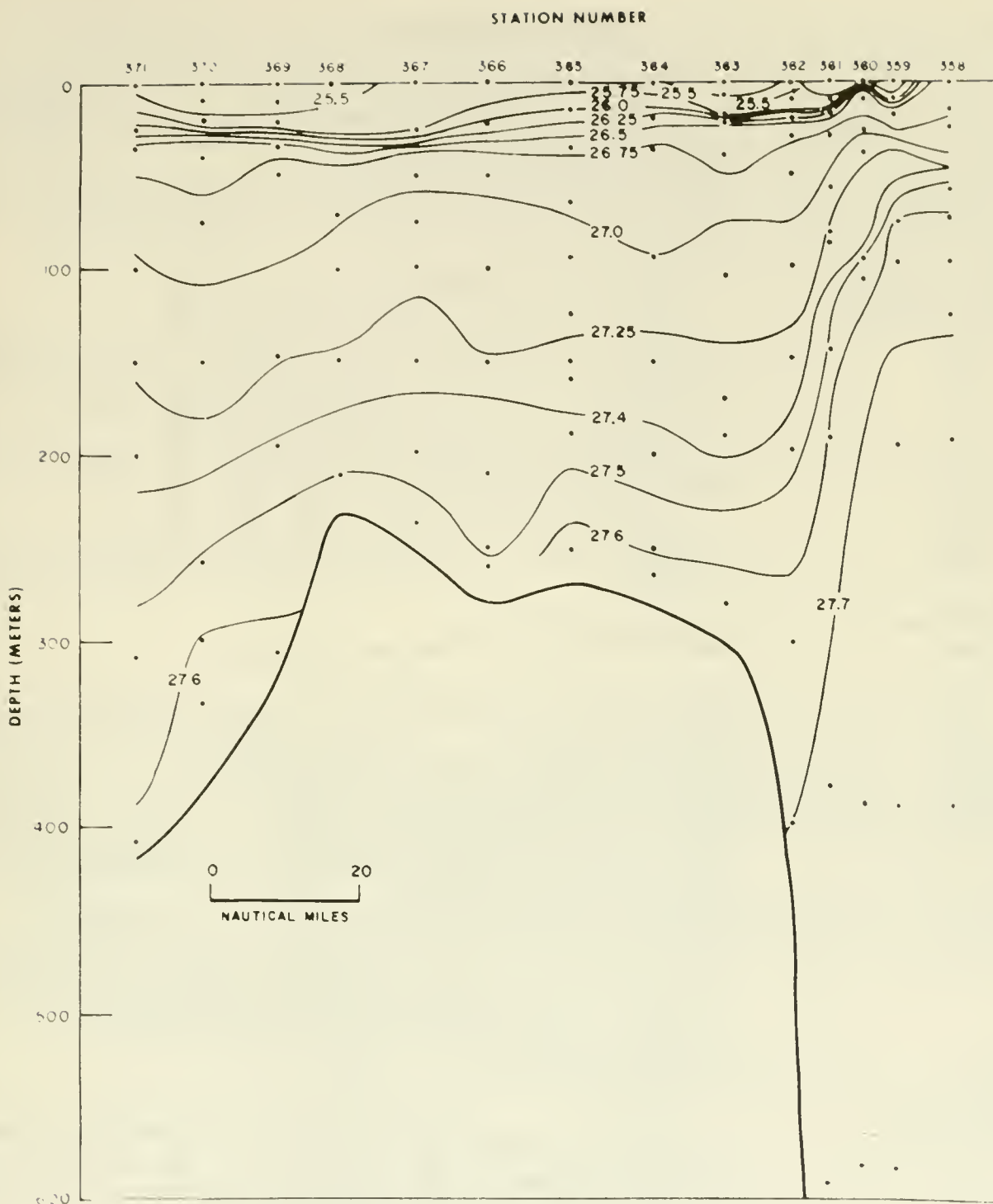


Figure 22. Density ( $\sigma_t$ ) profile for section D, 26 July 1968. Contour interval is 0.25 for values up to 27.25 and 0.10 for values greater than 27.40.

# APPENDIX A

## OCEANOGRAPHIC DATA

A complete description of the codes utilized in the tabulation of oceanographic station data can be found in National Oceanographic Data Center publication M-2, *Processing Physical and Chemical Data from Oceanographic Stations*. (Rev. August 1964, supplement issued May 1966.)

To facilitate use of the oceanographic station data listing, entry headings which are not self-explanatory are described below.

|   |  |
|---|--|
| Depth to Bottom .....                         | Corrected or uncorrected sounding in meters.   |
| Max. Depth of Samples. ....                   | Depth of deepest sample to nearest multiple of one hundred meters.   |
| Wave observations:                            |  |
| DIR. ....                                     | Round to nearest multiple of ten degrees.  |
| HGT. ....                                     | In increments of $\frac{1}{2}$ m. Sum of 5 meters plus increments of $\frac{1}{2}$ m if 50 is added to direction.  |
| PER. ....                                     | If numerals 2 through 9 are entered, period in seconds is twice the numeric entry or $2 \times (\text{numeric entry}) + 1$ . For other entries see WMO Code 3155.  |
| SEA ....                                      | Sea state according to WMO Code 3700.  |
| Weather Code. ....                            | If preceded by X, weather according to WMO Code 4501. If a two-digit entry, weather according to WMO Code 4677.  |
| Cloud Code:                                   |  |
| Type .....                                    | Cloud type according to WMO Code 0500.   |
| Amount .....                                  | Cloud amount in eights. Entry of the numeral 9 indicates cloud amount could not be estimated.  |
| Water:  |  |
| Color Code .....                              | Color according to Forel-Ule scale.  |
| Trans. ....                                   | Transparency in whole meters as determined by Secchi disc.   |
| Wind:   |  |
| Dir. ....                                     | Rounded to nearest multiple of ten degrees.  |
| Speed or Force. ....                          | If preceded by letter S, wind speed in knots, if preceded by letter F, wind force according to Beaufort scale.   |
| Barometer .....                               | Barometric pressure given in tens, units and tenths of millibars.  |
| Air Temp. °C .....                            | Air temperature to tenths of a degree centigrade.  |
| Vis. Code .....                               | Visibility according to WMO Code 4300.   |
| No obs. depths. ....                          | Number of observed levels associated with the station.   |
| Messenger time. ....                          | Entered in hours and tenths of an hour GMT. For Nansen casts, indicates time of release of messenger applicable to the observational level. For STD casts, indicates the starting time of lowering the sensor.   |
| Card type .....                               | OBS designates observed levels. STD indicates the values at this standard level were interpolated by a modified 3-point LaGrange formula.  |
| Depth (m) .....                               | Depth to nearest meter. A postscript T indicates depth was obtained thermometrically; S indicates uncorrected "wire out" depth. Postscript Q indicates value was marked doubtful by originator; P indicates value was considered doubtful by NODC. Postscripts P and Q retain this meaning throughout the following entries. |
| T °C .....                                    | Temperature to hundredths of a degree Centigrade.  |
| S ‰ .....                                     | Salinity in parts-per-thousand.  |
| SIGMA-T .....                                 | Entered to hundredths.   |
| Specific-volume                               |  |
| Anomaly — $\times 10^7$ .....                 | Multiply entry by $10^{-7}$ to obtain specific-volume anomaly in cubic centimeters per gram.   |
| $\Sigma \Delta$ Dyn. M $\times 10^3$ .....    | Multiply entry by $10^{-3}$ to obtain anomaly of dynamic height in dynamic meters referenced to the sea surface.   |
| Sound Velocity .....                          | Sound velocity according to Wilson's formula entered to tenths of a meter per second.  |
| O <sub>2</sub> ml/l .....                     | Dissolved oxygen in milliliters per liter entered to hundredths.   |
| PO <sub>4</sub> -P $\mu\text{g-at/l}$ .....   | Inorganic phosphate in microgram-atoms per liter entered to hundredths.  |
| Total-P $\mu\text{g-at/l}$ .....              | Total phosphorus in microgram-atoms per liter entered to hundredths.   |
| NO <sub>2</sub> -N $\mu\text{g-at/l}$ .....   | Nitrite-nitrogen in microgram-atoms per liter entered to hundredths.   |
| NO <sub>3</sub> -N $\mu\text{g-at/l}$ .....   | Nitrate-nitrogen in microgram-atoms per liter entered to tenths.   |
| SiO <sub>4</sub> -Si $\mu\text{g-at/l}$ ..... | Silicate-silicon in microgram-atoms per liter entered to whole units.  |
| pH .....                                      | Entered to hundredths.   |

Table 1. Observed and interpolated data for stations taken by USCGC EVERGREEN from 22 to 26 July during the 1968 International Ice Patrol. The data listings were prepared from NODC listing No. 31-1260.

| REFERENCE                  |             | SHIP<br>CODE | LATITUDE<br>° 1/10 | LONGITUDE<br>° 1/10 | DEPTH<br>METER | M/RSOEN<br>SQUARE |   | STATION TIME<br>(GMT)                 |                      |                     | YEAR                            | ORIGINATOR'S         |                                 | DEPTH<br>TO<br>BOTTOM           | MAX.<br>DEPTH<br>OF<br>SAMPL'S    | WAVE<br>OBSERVATIONS    |        |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |      | NODC<br>STATION<br>NUMBER |     |
|----------------------------|-------------|--------------|--------------------|---------------------|----------------|-------------------|---|---------------------------------------|----------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|-------------------------|--------|-----|----------------------|----------------|------|---------------------------|-----|
| CITY<br>CODE               | IO.<br>NO.  |              |                    |                     |                | 10"               | 1"  | MO                                    | DAY                  | HR.1/10             |                                 | CRUISE<br>NO.        | STATION<br>NUMBER               |                                 |                                   | DIR.                    | HGT    | PER |                      | SEA            | TYPE |                           | AMT |
| 311260                     | EV          |              | 54134N             | 054565W             | 186            | 44                | 07  | 22                                    | 224                  | 1968                | 11P                             | 10324                | 0174                            | 02                              | 34                                | 2                       | 3      |     | X1                   | 4              | 1    | 0001                      |     |
|                            |             |              |                    |                     |                | WATER             |   | WIND                                  |                      | BARO-<br>METER      |                                 | AIR TEMP. °C         |                                 | VIS.<br>CODE                    | NO.<br>OBS.<br>DEPTHS             | SPECIAL<br>OBSERVATIONS |        |     |                      |                |      |                           |     |
|                            |             |              |                    |                     |                | COLOR<br>CODE     | TRANS.<br>MM                              | DIR.                                  | SPEED<br>OR<br>FORCE | DRY<br>BULB         | WET<br>BULB                     | DRY<br>BULB          | WET<br>BULB                     |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            |             |              |                    |                     |                |                   |   |                                       | 09                   | 508                 | 230                             | 117                  | 094                             | 9                               | 09                                |                         |        |     |                      |                |      |                           |     |
| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m)          | T °C                | S ‰            | SIGMA-T           | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> | Σ Δ σ<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY    | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH                      | 1<br>C |     |                      |                |      |                           |     |
|                            |             | STD          | 0000               | 0656                | 3206           | 2518              | 0027929                                   | 0000                                  | 14734                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            | 224         | OBS          | 0000               | 0656                | 32056          | 2518              |   |                                       | 14734                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            |             | STD          | 0010               | 0492                | 3219           | 2548              | 0025125                                   | 0027                                  | 14671                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            | 224         | OBS          | 0010               | 0492                | 32185          | 2548              |   |                                       | 14671                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            |             | STD          | 0020               | 0465                | 3222           | 2553              | 0024594                                   | 0051                                  | 14662                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            | 224         | OBS          | 0020               | 0465                | 32220          | 2553              |   |                                       | 14662                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            |             | STD          | 0030               | 0099                | 3269           | 2622              | 0018107                                   | 0073                                  | 14511                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            | 224         | OBS          | 0030               | 0099                | 32693          | 2622              |   |                                       | 14511                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            |             | STD          | 0050               | -0127               | 3321           | 2673              | 0013206                                   | 0104                                  | 14417                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            | 224         | OBS          | 0050               | -0127               | 33205          | 2673              |   |                                       | 14417                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            |             | STD          | 0075               | -0143               | 3338           | 2687              | 0011826                                   | 0135                                  | 14416                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            | 224         | OBS          | 0075               | -0143               | 33377          | 2687              |   |                                       | 14416                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            |             | STD          | 0100               | -0136               | 3350           | 2697              | 0010857                                   | 0164                                  | 14425                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            | 224         | OBS          | 0100               | -0136               | 33504          | 2697              |   |                                       | 14425                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            |             | STD          | 0125               | -0131               | 3357           | 2703              | 0010352                                   | 0190                                  | 14433                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            |             | STD          | 0150               | -0078               | 3375           | 2715              | 0009193                                   | 0215                                  | 14464                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            | 224         | OBS          | 0150               | -0078               | 33745          | 2715              |   |                                       | 14464                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |
|                            | 224         | OBS          | 0160               | -0043               | 33841          | 2721              |   |                                       | 14483                |                     |                                 |                      |                                 |                                 |                                   |                         |        |     |                      |                |      |                           |     |

| REFERENCE                  |             | SHIP<br>CODE | LATITUDE<br>° 1/10 | LONGITUDE<br>° 1/10 | DEPTH<br>METER | MPS/SDEN<br>SQUARE |   | STATION TIME<br>(GMT)                 |                      |                     | YEAR                            | ORIGINATOR'S         |                                 | DEPTH<br>TO<br>BOTTOM           | MAX.<br>DEPTH<br>OF<br>SAMPLING   | WAVE<br>OBSERVATIONS    |        |      | WEA-<br>THER<br>CODE | CLOUD<br>CODES |      | NODC<br>STATION<br>NUMBER |      |  |
|----------------------------|-------------|--------------|--------------------|---------------------|----------------|--------------------|---|---------------------------------------|----------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|-------------------------|--------|------|----------------------|----------------|------|---------------------------|------|--|
| CITY<br>CODE               | ID.<br>NO.  |              |                    |                     |                | 10"                | 1"  | MO                                    | DAY                  | HR./10              |                                 | CRUISE<br>NO.        | STATION<br>NUMBER               |                                 |                                   | DIR.                    | HGT    | PER. |                      | SEA            | TYPE |                           | AMT  |  |
| 311260                     | EV          |              | 54207N             | 05442 W             | 186            | 44                 | 07  | 23                                    | 007                  | 1968                | 11P                             | 10325                |                                 | 0192                            | 02                                | 34                      | 2      | 3    |                      | X1             | 0    | 2                         | 0002 |  |
|                            |             |              |                    |                     |                | WATER              |   | WIND                                  |                      | BARO-<br>METER      |                                 | AIR TEMP. °C         |                                 | VIS.<br>CODE                    | NO.<br>OBS.<br>DEPTHS             | SPECIAL<br>OBSERVATIONS |        |      |                      |                |      |                           |      |  |
|                            |             |              |                    |                     |                | COLOR<br>CODE      | TRANS.<br>MM                              | DIR.                                  | SPEED<br>OR<br>FORCE | DRY<br>BULB         | WET<br>BULB                     | DRY<br>BULB          | WET<br>BULB                     |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            |             |              |                    |                     |                |                    |   |                                       |                      | 12                  | 506                             | 230                  | 078                             | 061                             | 8                                 | 09                      |        |      |                      |                |      |                           |      |  |
| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m)          | T °C                | S ‰            | SIGMA-T            | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> | Σ Δ σ<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY    | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH                      | 1<br>C |      |                      |                |      |                           |      |  |
|                            |             | STD          | 0000               | 0515                | 3210           | 2538               | 0026034                                   | 0000                                  | 14678                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            | 007         | OBS          | 0000               | 0515                | 32095          | 2538               |   |                                       | 14678                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            |             | STD          | 0010               | 0384                | 3212           | 2553               | 0024587                                   | 0025                                  | 14625                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            | 007         | OBS          | 0010               | 0384                | 32117          | 2553               |   |                                       | 14625                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            |             | STD          | 0020               | 0281                | 3225           | 2573               | 0022727                                   | 0049                                  | 14584                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            | 007         | OBS          | 0020               | 0281                | 32248          | 2573               |   |                                       | 14584                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            |             | STD          | 0030               | 0028                | 3261           | 2619               | 0018365                                   | 0070                                  | 14478                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            | 007         | OBS          | 0030               | -0113               | 32856          | 2644               |   |                                       | 14417                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            |             | STD          | 0050               | -0128               | 3300           | 2656               | 0014775                                   | 0103                                  | 14414                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            | 007         | OBS          | 0050               | -0134               | 33096          | 2664               |   |                                       | 14414                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            | 007         | OBS          | 0074               | -0134               | 33186          | 2672               |   |                                       | 14418                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            |             | STD          | 0075               | -0134               | 3319           | 2672               | 0013285                                   | 0138                                  | 14418                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            | 007         | OBS          | 0098               | -0131               | 33319          | 2682               |   |                                       | 14425                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            |             | STD          | 0100               | -0131               | 3333           | 2683               | 0012205                                   | 0170                                  | 14425                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            |             | STD          | 0125               | -0129               | 3343           | 2691               | 0011429                                   | 0199                                  | 14432                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            | 007         | OBS          | 0148               | -0128               | 33564          | 2702               |   |                                       | 14438                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            |             | STD          | 0150               | -0125               | 3358           | 2703               | 0010280                                   | 0226                                  | 14440                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |
|                            | 007         | OBS          | 0177               | -0058               | 33779          | 2717               |   |                                       | 14479                |                     |                                 |                      |                                 |                                 |                                   |                         |        |      |                      |                |      |                           |      |  |



| REFERENCE                  |                | SHIP<br>CODE | LATITUDE<br>" 1 10   | LONGITUDE<br>" 1 10 | TIME<br>1 10 | WIND<br>SQUARE |  | STATION TIME<br>(GMT)                      |                   | YEAR                    | ORIGINATOR'S                              |                                | DEPTH<br>TO<br>BOTTOM                     | WAVE<br>OBSERVATIONS                      | WIND<br>CODE                             | CLOUD<br>CODE | NODC<br>STATION<br>NUMBER |
|----------------------------|----------------|--------------|----------------------|---------------------|--------------|----------------|--|--|-------------------|-------------------------|---|--------------------------------|---|---|--|---------------|---------------------------|
| CRUISE<br>CODE             | ID.<br>NO.     |              |                      |                     |              | 10"            | 1"                                     | MO   | DAY               |                         | HR  | MIN                            |   |   |  |               |                           |
| 311260                     | EV             | 54285N       | 054275W              | 186                 | 44           | 07             | 23                                     | 014  | 1968              | 11P                     | 10326                                     | 0234                           | 02  | 34  | 2  | 3             | 0003                      |
| WAVE                       |                | WIND         |                      | BARO-<br>METER      |              | AIR TEMP. °C   |  | NO. OBS.<br>DEPTHS                         |                   | SPECIAL<br>OBSERVATIONS |   |                                |   |   |  |               |                           |
| COLOR<br>CODE              | TRANSL<br>CODE | DIR.         | SPEED<br>OR<br>FORCE | DRY<br>BULB         | WET<br>BULB  | WIND<br>CODE   | NO. OBS.<br>DEPTHS                     | SPECIAL<br>OBSERVATIONS                    |                   |                         |   |                                |   |   |  |               |                           |
|                            |                |              |                      | 12                  | S04          | 227            | 072                                    | 061  | 8                 | 10                      |   |                                |   |   |  |               |                           |
| MESSAGE<br>TIME<br>HR 1 10 | CARD<br>NO.    | CARD<br>TYPE | DEPTH<br>M           | T °C                | S %          | SIGMA-T        | SPECIFIC VOLUME<br>ANOMALY- $\sigma_t$ | $\Sigma \Delta$<br>DYN. M<br>$\times 10^3$ | SOUND<br>VELOCITY | D <sub>2</sub> M        | PO <sub>2</sub> -P<br>10 <sup>-4</sup> AT | TOTAL-P<br>10 <sup>-4</sup> AT | NO <sub>2</sub> -N<br>10 <sup>-4</sup> AT | NO <sub>3</sub> -N<br>10 <sup>-4</sup> AT | S <sub>0</sub> -S<br>10 <sup>-4</sup> AT | BM            | 1<br>C                    |
|                            |                | STD          | 0000                 | 0378                | 3075         | 2446           | 0034821                                | 0000                                       | 14602             |                         |   |                                |   |   |  |               |                           |
| 014                        |                | OBS          | 0000                 | 0378                | 30754        | 2446           |  |  | 14602             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0010                 | 0297                | 3078         | 2455           | 0033943                                | 0034                                       | 14569             |                         |   |                                |   |   |  |               |                           |
| 014                        |                | OBS          | 0010                 | 0297                | 30783        | 2455           |  |  | 14569             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0020                 | 0174                | 3116         | 2494           | 0030207                                | 0066                                       | 14522             |                         |   |                                |   |   |  |               |                           |
| 014                        |                | OBS          | 0020                 | 0174                | 31162        | 2494           |  |  | 14522             |                         |   |                                |   |   |  |               |                           |
| 014                        |                | OBS          | 0025                 | -0032               | 32450        | 2609           |  |  | 14447             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0030                 | -0081               | 3262         | 2624           | 0017846                                | 0090                                       | 14427             |                         |   |                                |   |   |  |               |                           |
| 014                        |                | OBS          | 0036                 | -0124               | 32781        | 2639           |  |  | 14410             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0050                 | -0150               | 3295         | 2653           | 0015101                                | 0123                                       | 14403             |                         |   |                                |   |   |  |               |                           |
| 014                        |                | OBS          | 0051                 | -0151               | 32956        | 2653           |  |  | 14403             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0075                 | -0136               | 3312         | 2666           | 0013817                                | 0160                                       | 14416             |                         |   |                                |   |   |  |               |                           |
| 014                        |                | OBS          | 0076                 | -0135               | 33128        | 2667           |  |  | 14417             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0100                 | -0135               | 3323         | 2675           | 0012959                                | 0193                                       | 14422             |                         |   |                                |   |   |  |               |                           |
| 014                        |                | OBS          | 0102                 | -0135               | 33240        | 2676           |  |  | 14423             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0125                 | -0131               | 3336         | 2686           | 0011960                                | 0224                                       | 14430             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0150                 | -0122               | 3348         | 2695           | 0011055                                | 0253                                       | 14440             |                         |   |                                |   |   |  |               |                           |
| 014                        |                | OBS          | 0152                 | -0121               | 33485        | 2695           |  |  | 14441             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0200                 | -0092               | 3364         | 2707           | 0009917                                | 0305                                       | 14465             |                         |   |                                |   |   |  |               |                           |
| 014                        |                | OBS          | T0207                | -0087               | 33662        | 2709           |  |  | 14468             |                         |   |                                |   |   |  |               |                           |

| REFERENCE                  |                | SHIP<br>CODE | LATITUDE<br>1 10     | LONGITUDE<br>1 10 | TIME<br>1 10 | WIND<br>SQUARE |  | STATION TIME<br>(GMT)                         |                   | YEAR                    | OBSERVATIONS                              |                                | DEPTH<br>TO<br>BOTTOM                     | WAVE<br>OBSERVATIONS                      | WIND<br>CODE                             | CLOUD<br>CODE | NODC<br>STATION<br>NUMBER |
|----------------------------|----------------|--------------|----------------------|-------------------|--------------|----------------|--|---|-------------------|-------------------------|---|--------------------------------|---|---|--|---------------|---------------------------|
| CRUISE<br>CODE             | ID.<br>NO.     |              |                      |                   |              | 10"            | 1"                                     | MO  | DAY               |                         | HR  | MIN                            |   |   |  |               |                           |
| 311260                     | EV             | 54352N       | 054128W              | 186               | 44           | 07             | 23                                     | 030   | 1968              | 11P                     | 10327                                     | 0241                           | 02  | 34  | 2  | 3             | 0004                      |
| WAVE                       |                | WIND         |                      | BARO-<br>METER    |              | AIR TEMP. °C   |  | NO. OBS.<br>DEPTHS                            |                   | SPECIAL<br>OBSERVATIONS |   |                                |   |   |  |               |                           |
| COLOR<br>CODE              | TRANSL<br>CODE | DIR.         | SPEED<br>OR<br>FORCE | DRY<br>BULB       | WET<br>BULB  | WIND<br>CODE   | NO. OBS.<br>DEPTHS                     | SPECIAL<br>OBSERVATIONS                       |                   |                         |   |                                |   |   |  |               |                           |
|                            |                |              | 13                   | S04               | 227          | 072            | 056                                    | 8   | 09                |                         |   |                                |   |   |  |               |                           |
| MESSAGE<br>TIME<br>HR 1 10 | CASE<br>NO.    | CARD<br>TYPE | DEPTH<br>M           | T °C              | S ‰          | SIGMA-T        | SPECIFIC VOLUME<br>ANOMALY- $\sigma_t$ | $\Sigma \Delta$<br>DYN. M.<br>10 <sup>3</sup> | SOUND<br>VELOCITY | D <sub>2</sub> M        | PO <sub>2</sub> -P<br>10 <sup>-4</sup> AT | TOTAL-P<br>10 <sup>-4</sup> AT | NO <sub>2</sub> -N<br>10 <sup>-4</sup> AT | NO <sub>3</sub> -N<br>10 <sup>-4</sup> AT | S <sub>0</sub> -S<br>10 <sup>-4</sup> AT | BM            |                           |
|                            |                | STD          | 0000                 | 0357              | 3088         | 2458           | 0033705                                | 0000  | 14595             |                         |   |                                |   |   |  |               |                           |
| 030                        |                | OBS          | 0000                 | 0357              | 30878        | 2458           |  |   | 14595             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0010                 | 0286              | 3106         | 2478           | 0031737                                | 0033  | 14568             |                         |   |                                |   |   |  |               |                           |
| 030                        |                | OBS          | 0010                 | 0286              | 31063        | 2478           |  |   | 14568             |                         |   |                                |   |   |  |               |                           |
| 030                        |                | OBS          | 0017                 | 0330              | 31617        | 2519           |  |   | 14596             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0020                 | 0181              | 3169         | 2536           | 0026238                                | 0062  | 14532             |                         |   |                                |   |   |  |               |                           |
| 030                        |                | OBS          | 0026                 | -0053             | 31873        | 2563           |  |   | 14429             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0030                 | -0066             | 3210         | 2582           | 0021881                                | 0086  | 14427             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0050                 | -0122             | 3303         | 2659           | 0014532                                | 0122  | 14417             |                         |   |                                |   |   |  |               |                           |
| 030                        |                | OBS          | 0050                 | -0122             | 33034        | 2659           |  |   | 14417             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0075                 | -0122             | 3317         | 2670           | 0013475                                | 0157  | 14423             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0100                 | -0121             | 3330         | 2680           | 0012466                                | 0190  | 14430             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0125                 | -0120             | 3344         | 2692           | 0011381                                | 0219  | 14436             |                         |   |                                |   |   |  |               |                           |
| 030                        |                | OBS          | 0143                 | -0120             | 33545        | 2700           |  |   | 14441             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0150                 | -0119             | 3359         | 2703           | 0010255                                | 0246  | 14443             |                         |   |                                |   |   |  |               |                           |
|                            |                | STD          | 0200                 | 0003              | 3388         | 2722           | 0008535                                | 0293  | 14512             |                         |   |                                |   |   |  |               |                           |
| 030                        |                | OBS          | 0201                 | 0007              | 33885        | 2722           |  |   | 14514             |                         |   |                                |   |   |  |               |                           |
| 030                        |                | OBS          | 0210                 | 0051              | 34045        | 2733           |  |   | 14538             |                         |   |                                |   |   |  |               |                           |
| 030                        |                | OBS          | T0224                | 0371              | 34708        | 2761           |  |   | 14689             |                         |   |                                |   |   |  |               |                           |



| REFERENCE                       |             | SHIP<br>CODE | LATITUDE<br>" L 12   | LONGITUDE<br>" 12 12 | TIME<br>MO DAY HR 12 | WATERS<br>SQUARE<br>" 12 12 | STATION TIME<br>GMT<br>MO DAY HR 12 | YEAR                    | ORIGINATOR        |                         | DEPTH<br>TO<br>BOTTOM | WAVE<br>DEPTH<br>OF<br>SURF | WAVE<br>OBSERVATIONS         |                              |                               | WEA-<br>TH-<br>CODE | CLOUD<br>CODE | WDOC<br>STATION<br>NUMBER |
|---------------------------------|-------------|--------------|----------------------|----------------------|----------------------|-----------------------------|-------------------------------------|-------------------------|-------------------|-------------------------|-----------------------|-----------------------------|------------------------------|------------------------------|-------------------------------|---------------------|---------------|---------------------------|
| CRUISE<br>NO.                   | NO.         |              |                      |                      |                      |                             |                                     |                         | CRUISE<br>NO.     | STATION<br>NUMBER       |                       |                             | DR                           | HT                           | PS                            |                     |               |                           |
| 311260                          | EV          | 54429N       | 053578W              | 186                  | 43 07 23             | 044                         | 1968                                | JIP 10328               | 0265              | 02                      | 34                    | 1                           | 3                            |                              | X1                            | 4                   | 2             | 0005                      |
| WAVE                            |             | WIND         |                      | BARO-<br>METER       |                      | AIR TEMP °C                 |                                     | NO.                     |                   | SPECIAL<br>OBSERVATIONS |                       |                             |                              |                              |                               |                     |               |                           |
| COLOR<br>CODE                   | WAVE<br>NO. | DR           | SPEED<br>OF<br>FORCE | WAVE<br>NO.          | DR                   | WET<br>BULB                 | WET<br>BULB                         | WV<br>CODE              | WV<br>DEPTHS      |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 |             |              |                      |                      |                      |                             |                                     |                         |                   | 11                      | 503                   | 220                         | 072                          | 061                          | 8                             | 12                  |               |                           |
| MESSAGE<br>TIME<br>MO DAY HR 12 | CAST<br>NO. | CARD<br>TYPE | DEPTH<br>M           | T °C                 | S °..                | SGMA-T                      | SPECIFIC VOLUME<br>ANOMALY-TEMP     | Δ D<br>DYN. M.<br>S. P. | SOUND<br>VELOCITY | D: M                    | PO-<br>P<br>PS - M    | TOTAL-<br>P<br>PS - M       | NO <sub>2</sub> -N<br>PS - M | NO <sub>3</sub> -N<br>PS - M | SiO <sub>2</sub> -S<br>PS - M | PH                  | 1<br>C        |                           |
|                                 |             | STD          | 0000                 | 0406                 | 3051                 | 2424                        | 0036933                             | 0000                    | 14611             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0000                 | 0406                 | 30507                | 2424                        |                                     |                         | 14611             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0004                 | 0351                 | 30469                | 2426                        |                                     |                         | 14587             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 |             | STD          | 0010                 | 0274                 | 3051                 | 2435                        | 0035839                             | 0036                    | 14556             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0013                 | 0226                 | 30718                | 2455                        |                                     |                         | 14538             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 |             | STD          | 0020                 | 0060                 | 3209                 | 2575                        | 0022493                             | 0066                    | 14483             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0024                 | -0008                | 32554                | 2616                        |                                     |                         | 14459             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 |             | STD          | 0030                 | -0072                | 3278                 | 2637                        | 0016651                             | 0085                    | 14434             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0031                 | -0081                | 32809                | 2639                        |                                     |                         | 14430             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0040                 | -0147                | 32931                | 2651                        |                                     |                         | 14402             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 |             | STD          | 0050                 | -0145                | 3301                 | 2658                        | 0014654                             | 0116                    | 14406             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 |             | STD          | 0075                 | -0139                | 3319                 | 2672                        | 0013271                             | 0151                    | 14416             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0099                 | -0133                | 33334                | 2684                        |                                     |                         | 14424             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 |             | STD          | 0100                 | -0125                | 3334                 | 2684                        | 0012147                             | 0183                    | 14428             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 |             | STD          | 0125                 | 0041                 | 3344                 | 2685                        | 0012088                             | 0213                    | 14511             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0148                 | 0115                 | 33534                | 2688                        |                                     |                         | 14549             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 |             | STD          | 0150                 | 0115                 | 3354                 | 2689                        | 0011771                             | 0243                    | 14550             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0179                 | 0095                 | 33647                | 2698                        |                                     |                         | 14547             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0198                 | 0059                 | 33722                | 2707                        |                                     |                         | 14535             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 |             | STD          | 0200                 | 0039                 | 3373                 | 2708                        | 0009865                             | 0297                    | 14526             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0213                 | 0003                 | 33869                | 2721                        |                                     |                         | 14514             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 044                             |             | OBS          | 0228                 | 0170                 | 34296                | 2745                        |                                     |                         | 14597             |                         |                       |                             |                              |                              |                               |                     |               |                           |

| REFERENCE                       |             | SHIP<br>CODE | LATITUDE<br>" 12     | LONGITUDE<br>" 12 12 | TIME<br>MO DAY HR 12 | WATERS<br>SQUARE<br>" 12 12 | STATION TIME<br>GMT<br>MO DAY HR 12 | YEAR                    | ORIGINATOR        |                         | DEPTH<br>TO<br>BOTTOM | WAVE<br>DEPTH<br>OF<br>SURF | WAVE<br>OBSERVATIONS         |                              |                               | WEA-<br>TH-<br>CODE | CLOUD<br>CODE | WDOC<br>STATION<br>NUMBER |
|---------------------------------|-------------|--------------|----------------------|----------------------|----------------------|-----------------------------|-------------------------------------|-------------------------|-------------------|-------------------------|-----------------------|-----------------------------|------------------------------|------------------------------|-------------------------------|---------------------|---------------|---------------------------|
| CRUISE<br>NO.                   | NO.         |              |                      |                      |                      |                             |                                     |                         | CRUISE<br>NO.     | STATION<br>NUMBER       |                       |                             | DR                           | HT                           | PS                            |                     |               |                           |
| 311260                          | EV          | 54498N       | 053423W              | 186                  | 43 07 23             | 082                         | 1968                                | JIP 10329               | 0410              | 04                      | 34                    | 1                           | 2                            |                              | X1                            | 4                   | 2             | 0006                      |
| WAVE                            |             | WIND         |                      | BARO-<br>METER       |                      | AIR TEMP °C                 |                                     | NO.                     |                   | SPECIAL<br>OBSERVATIONS |                       |                             |                              |                              |                               |                     |               |                           |
| CRUISE<br>CODE                  | WAVE<br>NO. | DR           | SPEED<br>OF<br>FORCE | WAVE<br>NO.          | DR                   | WET<br>BULB                 | WET<br>BULB                         | WV<br>CODE              | WV<br>DEPTHS      |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 |             |              |                      |                      |                      |                             |                                     |                         |                   | 08                      | 505                   | 210                         | 072                          | 058                          | 8                             | 13                  |               |                           |
| MESSAGE<br>TIME<br>MO DAY HR 12 | CAST<br>NO. | CARD<br>TYPE | DEPTH<br>M           | T °C                 | S °..                | SGMA-T                      | SPECIFIC VOLUME<br>ANOMALY-TEMP     | Δ D<br>DYN. M.<br>S. P. | SOUND<br>VELOCITY | D: M                    | PO-<br>P<br>PS - M    | TOTAL-<br>P<br>PS - M       | NO <sub>2</sub> -N<br>PS - M | NO <sub>3</sub> -N<br>PS - M | SiO <sub>2</sub> -S<br>PS - M | PH                  | 1<br>C        |                           |
|                                 |             | STD          | 0000                 | 0346                 | 3141                 | 2501                        | 0029620                             | 0000                    | 14597             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | 0000         | 0346                 | 31406                | 2501                 |                             |                                     |                         | 14597             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 | STD         | 0010         | 0047                 | 3229                 | 2592                 | 0020912                     | 0025                                |                         | 14478             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | 0010         | 0047                 | 32289                | 2592                 |                             |                                     |                         | 14478             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 | STD         | 0020         | -0144                | 3281                 | 2642                 | 0016190                     | 0044                                |                         | 14399             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | 0020         | -0144                | 32813                | 2642                 |                             |                                     |                         | 14399             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 | STD         | 0030         | -0143                | 3295                 | 2653                 | 0015133                     | 0059                                |                         | 14403             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | 0041         | -0142                | 33075                | 2663                 |                             |                                     |                         | 14407             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 | STD         | 0050         | -0141                | 3314                 | 2668                 | 0013666                     | 0088                                |                         | 14410             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | 0070         | -0135                | 33287                | 2680                 |                             |                                     |                         | 14418             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 | STD         | 0075         | -0131                | 3332                 | 2682                 | 0012328                     | 0121                                |                         | 14421             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 | STD         | 0100         | -0111                | 3346                 | 2693                 | 0011267                     | 0150                                |                         | 14437             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 | STD         | 0125         | -0090                | 3361                 | 2704                 | 0010218                     | 0177                                |                         | 14453             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | 0140         | -0078                | 33693                | 2711                 |                             |                                     |                         | 14462             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | 0145         | -0033                | 33802                | 2718                 |                             |                                     |                         | 14485             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 | STD         | 0150         | 0025                 | 3383                 | 2717                 | 0009070                     | 0201                                |                         | 14513             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | 0150         | 0025                 | 33825                | 2717                 |                             |                                     |                         | 14513             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | 0160         | 0000                 | 33855                | 2720                 |                             |                                     |                         | 14503             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 | STD         | 0200         | 0109                 | 3418                 | 2740                 | 0006889                     | 0241                                |                         | 14564             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | T0203        | 0119                 | 34200                | 2741                 |                             |                                     |                         | 14569             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 | STD         | 0250         | 0312                 | 3459                 | 2757                 | 0005462                     | 0272                                |                         | 14667             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | 0260         | 0334                 | 34656                | 2760                 |                             |                                     |                         | 14679             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | T0276        | 0355                 | 34738                | 2765                 |                             |                                     |                         | 14692             |                         |                       |                             |                              |                              |                               |                     |               |                           |
|                                 | STD         | 0300         | 0358                 | 3483                 | 2772                 | 0004149                     | 0296                                |                         | 14698             |                         |                       |                             |                              |                              |                               |                     |               |                           |
| 082                             | OBS         | T0386        | 0368                 | 34866                | 2773                 |                             |                                     |                         | 14717             |                         |                       |                             |                              |                              |                               |                     |               |                           |

| REFERENCE                  |               | SHIP<br>CODE | LATITUDE<br>1/10     | LONGITUDE<br>1/10       | W. RESIDEN<br>SQUARE | STATION TIME<br>(GMT) |                                    |                                       |                         | YEAR                | ORIGINATOR'S                    |                      | DEPTH<br>TO<br>BOTTOM           | MAX.<br>DEPTH<br>OF<br>SAMPL'S  | WAVE<br>OBSERVATIONS              |    |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NODC<br>STATION<br>NUMBER |
|----------------------------|---------------|--------------|----------------------|-------------------------|----------------------|-----------------------|------------------------------------|---------------------------------------|-------------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----|-----|----------------------|----------------|-----|---------------------------|
| CRUISE<br>CODE             | ID. NO.       |              |                      |                         |                      | 10°                   | 1°                                 | M/D                                   | DAY<br>HR.1/10          |                     | CRUISE<br>NO.                   | STATION<br>NUMBER    |                                 |                                 | DR.                               | HC | PER | SEA                  | TYPE           | AMT |                           |
| 311260                     | EV            | 54525N       | 05336 W              | 186                     | 43                   | 07                    | 23                                 | 102                                   | 1968                    | IIP                 | 10330                           | 0600                 | 05                              | 11                              | 1                                 | 2  |     | X1                   | 4              | 2   | 0007                      |
| WATER                      |               | WIND         |                      | BARO-<br>METER<br>(mba) | AIR TEMP. °C         |                       | VIL<br>CODE                        | NO.<br>OBS.<br>DEPTHS                 | SPECIAL<br>OBSERVATIONS |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| COLOR<br>CODE              | TRANS.<br>(m) | DIR.         | SPEED<br>OR<br>FORCE |                         | DRY<br>BULB          | WET<br>BULB           |                                    |                                       |                         |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               |              | 14                   | 502                     | 217                  | 089                   | 078                                | 8                                     | 14                      |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| MESSAGE<br>TIME<br>HR 1/10 | CARD<br>NO.   | CARD<br>TYPE | DEPTH (m)            | T °C                    | S ‰                  | SIGMA-T               | SPECIFIC VOLUME<br>ANOMALY (T=15°) | Σ Δ σ<br>DTN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY       | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>2</sub> -Si<br>μg - ml/l | pH | END |                      |                |     |                           |
|                            |               | STD          | 0000                 | 0408                    | 3176                 | 2523                  | 0027495                            | 0000                                  | 14628                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0000                 | 0408                    | 31760                | 2523                  |                                    |                                       | 14628                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0010                 | 0294                    | 3204                 | 2555                  | 0024431                            | 0026                                  | 14585                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0010                 | 0294                    | 32036                | 2555                  |                                    |                                       | 14585                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0020                 | -0037                   | 3293                 | 2648                  | 0015638                            | 0046                                  | 14450                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0025                 | -0124                   | 33203                | 2673                  |                                    |                                       | 14414                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0030                 | -0123                   | 3330                 | 2680                  | 0012501                            | 0060                                  | 14417                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0037                 | -0122                   | 33415                | 2690                  |                                    |                                       | 14420                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0044                 | -0079                   | 33515                | 2696                  |                                    |                                       | 14443                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0050                 | -0087                   | 3355                 | 2700                  | 0010692                            | 0083                                  | 14441                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0074                 | -0095                   | 33678                | 2710                  |                                    |                                       | 14443                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0075                 | -0094                   | 3368                 | 2710                  | 0009661                            | 0109                                  | 14444                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0098                 | -0065                   | 33761                | 2716                  |                                    |                                       | 14462                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0100                 | -0062                   | 3377                 | 2716                  | 0009086                            | 0132                                  | 14464                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0125                 | -0008                   | 3393                 | 2727                  | 0008103                            | 0154                                  | 14495                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0150                 | 0077                    | 3412                 | 2737                  | 0007131                            | 0173                                  | 14541                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0157                 | 0106                    | 34176                | 2740                  |                                    |                                       | 14555                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0183                 | 0235                    | 34421                | 2750                  |                                    |                                       | 14620                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0194                 | 0188                    | 34398                | 2752                  |                                    |                                       | 14601                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0200                 | 0213                    | 3444                 | 2753                  | 0005695                            | 0205                                  | 14614                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0210                 | 0250                    | 34515                | 2756                  |                                    |                                       | 14632                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0250                 | 0332                    | 3473                 | 2766                  | 0004602                            | 0230                                  | 14677                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | 0259                 | 0346                    | 34766                | 2768                  |                                    |                                       | 14685                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0300                 | 0354                    | 3482                 | 2771                  | 0004186                            | 0252                                  | 14696                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | T0392                | 0366                    | 34889                | 2775                  |                                    |                                       | 14717                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0400                 | 0366                    | 3489                 | 2775                  | 0003880                            | 0293                                  | 14719                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
|                            |               | STD          | 0500                 | 0365                    | 3490                 | 2776                  | 0003916                            | 0332                                  | 14735                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |
| 102                        |               | OBS          | T0550                | 0365                    | 34898                | 2776                  |                                    |                                       | 14743                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |     |                           |

| REFERENCE                  |               | SHIP<br>CODE | LATITUDE<br>1/10     | LONGITUDE<br>1/10       | W. RESIDEN<br>SQUARE | STATION TIME<br>(GMT) |                                    |                                       |                         | YEAR                | ORIGINATOR'S                    |                      | DEPTH<br>TO<br>BOTTOM           | MAX.<br>DEPTH<br>OF<br>SAMPL'S  | WAVE<br>OBSERVATIONS              |    |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |      | NODC<br>STATION<br>NUMBER |
|----------------------------|---------------|--------------|----------------------|-------------------------|----------------------|-----------------------|------------------------------------|---------------------------------------|-------------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----|-----|----------------------|----------------|------|---------------------------|
| CRUISE<br>CODE             | ID.<br>NO.    |              |                      |                         |                      | 10°                   | 1°                                 | M/D                                   | DAY<br>HR.1/10          |                     | CRUISE<br>NO.                   | STATION<br>NUMBER    |                                 |                                 | DR.                               | HC | PER |                      | SEA            | TYPE |                           |
| 311260                     | EV            | 54558N       | 053276W              | 186                     | 43                   | 07                    | 23                                 | 115                                   | 1968                    | IIP                 | 10331                           | 1134                 | 09                              | 11                              | 2                                 | 3  |     | X0                   | 0              |      | 0008                      |
| WATER                      |               | WIND         |                      | BARO-<br>METER<br>(mba) | AIR TEMP. °C         |                       | VIL<br>CODE                        | NO.<br>OBS.<br>DEPTHS                 | SPECIAL<br>OBSERVATIONS |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| COLOR<br>CODE              | TRANS.<br>(m) | DIR.         | SPEED<br>OR<br>FORCE |                         | DRY<br>BULB          | WET<br>BULB           |                                    |                                       |                         |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               |              | 17                   | 506                     | 210                  | 083                   | 072                                | 13                                    |                         |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| MESSAGE<br>TIME<br>HR 1/10 | CARD<br>NO.   | CARD<br>TYPE | DEPTH (m)            | T °C                    | S ‰                  | SIGMA-T               | SPECIFIC VOLUME<br>ANOMALY (T=15°) | Σ Δ σ<br>DTN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY       | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>2</sub> -Si<br>μg - ml/l | pH | END |                      |                |      |                           |
|                            |               | STD          | 0000                 | 0448                    | 3230                 | 2562                  | 0023815                            | 0000                                  | 14652                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | 0000                 | 0448                    | 32299                | 2562                  |                                    |                                       | 14652                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0010                 | 0359                    | 3263                 | 2597                  | 0020461                            | 0022                                  | 14621                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | 0010                 | 0359                    | 32634                | 2597                  |                                    |                                       | 14621                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0020                 | 0250                    | 3309                 | 2643                  | 0016089                            | 0040                                  | 14582                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | 0020                 | 0250                    | 33093                | 2643                  |                                    |                                       | 14582                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0030                 | 0059                    | 3364                 | 2700                  | 0010711                            | 0054                                  | 14506                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | 0030                 | 0059                    | 33635                | 2700                  |                                    |                                       | 14506                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0050                 | 0163                    | 3402                 | 2723                  | 0008467                            | 0073                                  | 14561                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | 0050                 | 0163                    | 34016                | 2723                  |                                    |                                       | 14561                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | 0074                 | 0082                    | 34080                | 2734                  |                                    |                                       | 14530                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0075                 | 0084                    | 3409                 | 2735                  | 0007395                            | 0093                                  | 14531                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | 0099                 | 0125                    | 34226                | 2743                  |                                    |                                       | 14555                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0100                 | 0128                    | 3423                 | 2743                  | 0006618                            | 0110                                  | 14557                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0125                 | 0192                    | 3435                 | 2748                  | 0006177                            | 0126                                  | 14591                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | 0149                 | 0244                    | 34461                | 2753                  |                                    |                                       | 14619                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0150                 | 0245                    | 3447                 | 2753                  | 0005706                            | 0141                                  | 14620                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0200                 | 0303                    | 3465                 | 2762                  | 0004891                            | 0168                                  | 14656                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0250                 | 0343                    | 3478                 | 2769                  | 0004334                            | 0191                                  | 14683                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | 0297                 | 0366                    | 34852                | 2773                  |                                    |                                       | 14701                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0300                 | 0366                    | 3485                 | 2773                  | 0004068                            | 0212                                  | 14702                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | 0396                 | 0365                    | 34864                | 2774                  |                                    |                                       | 14717                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0400                 | 0365                    | 3486                 | 2774                  | 0004056                            | 0252                                  | 14718                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0500                 | 0364                    | 3487                 | 2774                  | 0004096                            | 0293                                  | 14734                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | T0595                | 0363                    | 34874                | 2775                  |                                    |                                       | 14750                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0600                 | 0363                    | 3487                 | 2774                  | 0004164                            | 0334                                  | 14750                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0700                 | 0360                    | 3487                 | 2775                  | 0004217                            | 0376                                  | 14766                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | 0794                 | 0359                    | 34868                | 2774                  |                                    |                                       | 14781                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0800                 | 0359                    | 3487                 | 2775                  | 0004292                            | 0419                                  | 14782                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
|                            |               | STD          | 0900                 | 0361                    | 3487                 | 2774                  | 0004399                            | 0462                                  | 14799                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |
| 115                        |               | OBS          | T0944                | 0362                    | 34878                | 2775                  |                                    |                                       | 14807                   |                     |                                 |                      |                                 |                                 |                                   |    |     |                      |                |      |                           |

| REFERENCE    |            | SHIP<br>CODE | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | DATE<br>1/10 | M/R SDEEN<br>SQUARE |    | STATION TIME<br>(GMT) |     | YEAR   | ORIGINATOR'S  |                   | DEPTH<br>TO<br>BOTTOM | MAR.<br>DEPTH<br>OF<br>SAMPL'S | WAVE<br>OBSERVATIONS |     |     |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NODC<br>STATION<br>NUMBER |
|--------------|------------|--------------|------------------|-------------------|--------------|---------------------|----|-----------------------|-----|--------|---------------|-------------------|-----------------------|--------------------------------|----------------------|-----|-----|-----|----------------------|----------------|-----|---------------------------|
| CTRY<br>CODE | ID.<br>NO. |              |                  |                   |              | 10"                 | 1" | MO                    | DAY | HR./10 | CRUISE<br>NO. | STATION<br>NUMBER |                       |                                | DIR                  | HGT | PER | SEA |                      | TYPE           | AMT |                           |
| 311260       | EV         |              | 54582N           | 053203W           |              | 186                 | 43 | 07                    | 23  | 139    | 1968          | IIP               | 10332                 | 1426                           | 14                   | 16  | 2   | 3   | X1                   | 3              | 2   | 0009                      |

| WATER         |              | WIND |                      | BARO-<br>METER<br>(mbars) | AIR TEMP. °C |             | VIS.<br>CODE | NO.<br>OBS.<br>DEPTHS | SPECIAL<br>OBSERVATIONS |
|---------------|--------------|------|----------------------|---------------------------|--------------|-------------|--------------|-----------------------|-------------------------|
| COLOR<br>CODE | TRANS-<br>M. | DIR. | SPEED<br>OR<br>FORCE |                           | DRY<br>BULB  | WET<br>BULB |              |                       |                         |
|               |              |      | 17                   | 506                       | 203          | 083         | 072          | 8                     | 15                      |

| MESSNGR<br>TIME<br>NR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C | S ‰   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-20° | $\frac{\Delta \rho}{\rho}$<br>CTD, M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>µg - ml/l | TOTAL-P<br>µg - ml/l | NO <sub>3</sub> -N<br>µg - ml/l | NO <sub>3</sub> -N<br>µg - ml/l | SiO <sub>4</sub> -Si<br>µg - ml/l | pH | T<br>C |
|----------------------------|-------------|--------------|-----------|------|-------|---------|--------------------------------|--|-------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----|--------|
|                            |             | STD          | 0000      | 0604 | 3271  | 2576    | 0022451                        | 0000   | 14722             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 0000      | 0604 | 32705 | 2576    |                                |  | 14722             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0010      | 0463 | 3290  | 2608    | 0019437                        | 0021   | 14668             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 0010      | 0463 | 32902 | 2608    |                                |  | 14668             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0020      | 0167 | 3354  | 2685    | 0012097                        | 0037   | 14551             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 0028      | 0036 | 33880 | 2721    |                                |  | 14498             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0030      | 0042 | 3390  | 2722    | 0008600                        | 0047   | 14502             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 0047      | 0098 | 34052 | 2731    |                                |  | 14532             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0050      | 0113 | 3408  | 2732    | 0007648                        | 0063   | 14540             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 0070      | 0192 | 34252 | 2740    |                                |  | 14580             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0075      | 0202 | 3429  | 2742    | 0006686                        | 0081   | 14586             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0100      | 0253 | 3447  | 2753    | 0005744                        | 0097   | 14615             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 0100      | 0253 | 34470 | 2753    |                                |  | 14615             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0125      | 0320 | 3465  | 2761    | 0004993                        | 0110   | 14651             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0150      | 0362 | 3477  | 2767    | 0004481                        | 0122   | 14674             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 0150      | 0362 | 34774 | 2767    |                                |  | 14674             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0200      | 0368 | 3484  | 2771    | 0004112                        | 0144   | 14686             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 0200      | 0368 | 34837 | 2771    |                                |  | 14686             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0250      | 0365 | 3485  | 2772    | 0004029                        | 0164   | 14693             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0300      | 0363 | 3487  | 2774    | 0003940                        | 0184   | 14701             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 0300      | 0363 | 34865 | 2774    |                                |  | 14701             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0400      | 0362 | 3487  | 2775    | 0003958                        | 0223   | 14717             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 0400      | 0362 | 34873 | 2775    |                                |  | 14717             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0500      | 0362 | 3487  | 2775    | 0004032                        | 0263   | 14733             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0600      | 0361 | 3487  | 2775    | 0004113                        | 0304   | 14750             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 0600      | 0361 | 34874 | 2775    |                                |  | 14750             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0700      | 0361 | 3488  | 2775    | 0004154                        | 0345   | 14766             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0800      | 0361 | 3488  | 2775    | 0004239                        | 0387   | 14783             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | T0802     | 0361 | 34882 | 2775    |                                |  | 14783             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0900      | 0350 | 3487  | 2776    | 0004272                        | 0430   | 14795             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 1000      | 0347 | 3486  | 2775    | 0004362                        | 0473   | 14810             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | 1000      | 0347 | 34864 | 2775    |                                |  | 14810             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 1100      | 0356 | 3488  | 2776    | 0004429                        | 0517   | 14831             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 1200      | 0365 | 3490  | 2776    | 0004470                        | 0561   | 14852             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | T1204     | 0365 | 34901 | 2776    |                                |  | 14852             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 1300      | 0365 | 3491  | 2777    | 0004479                        | 0606   | 14868             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 139                        |             | OBS          | T1388     | 0364 | 34919 | 2778    |                                |  | 14883             |                     |                                 |                      |                                 |                                 |                                   |    |        |

| REFERENCE    |            | SHIP<br>CODE | LATITUDE<br>° 1/10 | LONGITUDE<br>° 1/10 | WASDEN<br>SQUARE | STATION TIME<br>(GMT) |               |                | YEAR                | ORIGINATOR'S   |                   | DEPTH<br>TO<br>BOTTOM | MAIL<br>DEPTH<br>OF<br>SAMPLE | WAVE<br>OBSERVATIONS |                      |                         |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NOO<br>STATION<br>NUMBER |  |      |
|--------------|------------|--------------|--------------------|---------------------|------------------|-----------------------|---------------|----------------|---------------------|----------------|-------------------|-----------------------|-------------------------------|----------------------|----------------------|-------------------------|-----|----------------------|----------------|-----|--------------------------|--|------|
| CHIT<br>CODE | ID.<br>NO. |              |                    |                     |                  | 10"                   | 1"            | MO DAY HR.1/10 |                     | CRUISE<br>NO.  | STATION<br>NUMBER |                       |                               | DIR                  | HGT                  | PER                     | SEA |                      | TYPE           | AMT |                          |  |      |
| 311260       | EV         | 55009N       | 053141W            | 186                 | 53               | 07                    | 23            | 165            | 1968                | 11P            | 10333             | 2030                  | 13                            | 34                   | 1                    | 2                       |     | X1                   | 3              | 5   |                          |  | 0010 |
|              |            |              |                    |                     |                  | WATER                 |               | WIND           |                     | BARO-<br>METER |                   | AIR TEMP. °C          |                               | VIS<br>CODE          | NO.<br>OBS.<br>DEPTH | SPECIAL<br>OBSERVATIONS |     |                      |                |     |                          |  |      |
|              |            |              |                    |                     |                  | COLOR<br>CODE         | TEMP.<br>(°C) | DIR.           | SPED<br>OF<br>FORCE | DRY<br>BULB    | WET<br>BULB       |                       |                               |                      |                      |                         |     |                      |                |     |                          |  |      |
|              |            |              |                    |                     |                  |                       | 17            | S11            | 166                 | 094            | 072               | 8                     | 13                            |                      |                      |                         |     |                      |                |     |                          |  |      |

| MESSNGR<br>TIME<br>HR 1/10 | CAS<br>ND. | CARD<br>TYPE | DEPTH (m) | T °C | S ‰   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-20° | Σ Δ D<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SIO <sub>4</sub> -Si<br>μg - ml/l | pH | 1<br>C |
|----------------------------|------------|--------------|-----------|------|-------|---------|--------------------------------|---------------------------------------|-------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----|--------|
|                            |            | STD          | 0000      | 0660 | 3313  | 2602    | 0019939                        | 0000                                  | 14750             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | 0000      | 0660 | 33131 | 2602    |                                |                                       | 14750             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0010      | 0632 | 3356  | 2640    | 0016393                        | 0018                                  | 14746             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | 0010      | 0632 | 33561 | 2640    |                                |                                       | 14746             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0020      | 0267 | 3405  | 2718    | 0009009                        | 0031                                  | 14602             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | 0020      | 0267 | 34047 | 2718    |                                |                                       | 14602             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0030      | 0291 | 3441  | 2745    | 0006468                        | 0039                                  | 14619             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | 0030      | 0291 | 34411 | 2745    |                                |                                       | 14619             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0050      | 0242 | 3444  | 2751    | 0005868                        | 0051                                  | 14602             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | 0050      | 0242 | 34438 | 2751    |                                |                                       | 14602             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0075      | 0306 | 3461  | 2759    | 0005130                        | 0065                                  | 14636             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | 0099      | 0351 | 34732 | 2764    |                                |                                       | 14661             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0100      | 0351 | 3473  | 2765    | 0004641                        | 0077                                  | 14661             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0125      | 0356 | 3476  | 2766    | 0004479                        | 0088                                  | 14668             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0150      | 0361 | 3480  | 2768    | 0004316                        | 0099                                  | 14674             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | 0198      | 0371 | 34854 | 2772    |                                |                                       | 14687             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0200      | 0371 | 3485  | 2772    | 0004013                        | 0120                                  | 14687             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0250      | 0368 | 3486  | 2773    | 0003976                        | 0140                                  | 14694             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0300      | 0365 | 3487  | 2774    | 0003939                        | 0160                                  | 14702             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | T0302     | 0365 | 34868 | 2774    |                                |                                       | 14702             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | T0398     | 0364 | 34876 | 2775    |                                |                                       | 14717             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0400      | 0364 | 3488  | 2775    | 0003956                        | 0199                                  | 14718             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0500      | 0362 | 3488  | 2775    | 0004007                        | 0239                                  | 14733             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | 0595      | 0360 | 34880 | 2775    |                                |                                       | 14748             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0600      | 0360 | 3488  | 2775    | 0004057                        | 0279                                  | 14749             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0700      | 0360 | 3488  | 2775    | 0004128                        | 0320                                  | 14766             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0800      | 0359 | 3488  | 2776    | 0004187                        | 0362                                  | 14782             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | 0800      | 0359 | 34884 | 2776    |                                |                                       | 14782             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 0900      | 0357 | 3489  | 2776    | 0004198                        | 0404                                  | 14798             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 1000      | 0354 | 3489  | 2777    | 0004253                        | 0446                                  | 14813             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | 1043      | 0353 | 34896 | 2777    |                                |                                       | 14820             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 1100      | 0354 | 3490  | 2777    | 0004271                        | 0489                                  | 14830             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 1200      | 0357 | 3490  | 2778    | 0004350                        | 0532                                  | 14848             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |            | STD          | 1300      | 0359 | 3491  | 2778    | 0004429                        | 0576                                  | 14866             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 165                        |            | OBS          | T1312     | 0359 | 34908 | 2778    |                                |                                       | 14868             |                     |                                 |                      |                                 |                                 |                                   |    |        |

| REFERENCE    |            | SHIP<br>CODE | LATITUDE<br>° 1/10 | LONGITUDE<br>° 1/10 | MO<br>NO. | MARS DEN<br>SQUARE |              | STATION TIME<br>(GMT) |                      |                | YEAR | ORIGINATOR'S  |                   | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>S'AMPL'S | WAVE<br>OBSERVATIONS    |     |     |     | WEA-<br>NER<br>CODE | CLOUD<br>CODES |     | NDDC<br>STATION<br>NUMBER |
|--------------|------------|--------------|--------------------|---------------------|-----------|--------------------|--------------|-----------------------|----------------------|----------------|------|---------------|-------------------|-----------------------|---------------------------------|-------------------------|-----|-----|-----|---------------------|----------------|-----|---------------------------|
| CTRY<br>CODE | ID.<br>NO. |              |                    |                     |           | 10"                | 1"           | MO                    | DAT                  | HR.1/10        |      | CRUISE<br>NO. | STATION<br>NUMBER |                       |                                 | DIR                     | HGT | PER | SEA |                     | TYPE           | AMT |                           |
| 311260       | EV         |              | 55107N             | 052532W             | 186       | 52                 | 07           | 23                    | 187                  | 1968           | 11P  | 10334         |                   | 2752                  | 16                              | 34                      | 1   | 2   |     | X1                  | 3              | 6   | 0011                      |
|              |            |              |                    |                     |           | WATER              |              | WIND                  |                      | BARO-<br>METER |      | AIR TEMP. °C  |                   | VIS.<br>COOL          | ND.<br>OBS.<br>DEPTHS           | SPECIAL<br>OBSERVATIONS |     |     |     |                     |                |     |                           |
|              |            |              |                    |                     |           | COLOR<br>CODE      | TRANS.<br>MM | DIR.                  | SPEED<br>OR<br>FORCE | MMHG           | MMHG | DRY<br>BULB   | WET<br>BULB       |                       |                                 |                         |     |     |     |                     |                |     |                           |
|              |            |              |                    |                     |           |                    |              |                       | 17                   | 510            | 159  | 122           | 100               | 8                     | 14                              |                         |     |     |     |                     |                |     |                           |

| MESSENGER<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C | S %   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> | Σ Δ D<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>2</sub> -N<br>μg - ml/l | SIO <sub>4</sub> -Si<br>μg - ml/l | PH | S<br>C |
|------------------------------|-------------|--------------|-----------|------|-------|---------|---|---------------------------------------|-------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----|--------|
|                              |             | STD          | 0000      | 0672 | 3381  | 2654    | 0015041                                   | 0000                                  | 14764             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | 0000      | 0672 | 33807 | 2654    |   |                                       | 14764             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0010      | 0606 | 3410  | 2686    | 0012048                                   | 0014                                  | 14743             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0020      | 0544 | 3434  | 2712    | 0009535                                   | 0024                                  | 14723             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | 0025      | 0514 | 34437 | 2723    |   |                                       | 14713             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0030      | 0477 | 3450  | 2733    | 0007602                                   | 0033                                  | 14699             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0050      | 0380 | 3469  | 2758    | 0005229                                   | 0046                                  | 14664             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | 0050      | 0380 | 34686 | 2758    |   |                                       | 14664             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0075      | 0371 | 3476  | 2765    | 0004592                                   | 0058                                  | 14666             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | 0075      | 0371 | 34762 | 2765    |   |                                       | 14666             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0100      | 0370 | 3483  | 2770    | 0004087                                   | 0069                                  | 14670             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | 0100      | 0370 | 34831 | 2770    |   |                                       | 14670             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0125      | 0367 | 3484  | 2771    | 0004012                                   | 0079                                  | 14673             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | 0149      | 0365 | 34853 | 2773    |   |                                       | 14676             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0150      | 0365 | 3485  | 2773    | 0003917                                   | 0089                                  | 14677             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | 0199      | 0367 | 34863 | 2773    |   |                                       | 14686             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0200      | 0367 | 3486  | 2773    | 0003907                                   | 0108                                  | 14686             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0250      | 0367 | 3487  | 2774    | 0003914                                   | 0128                                  | 14694             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | 0299      | 0367 | 34873 | 2774    |   |                                       | 14702             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0300      | 0367 | 3487  | 2774    | 0003921                                   | 0148                                  | 14702             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | 0398      | 0369 | 34881 | 2775    |   |                                       | 14720             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0400      | 0369 | 3488  | 2775    | 0003971                                   | 0187                                  | 14720             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0500      | 0364 | 3488  | 2775    | 0003999                                   | 0227                                  | 14734             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0600      | 0361 | 3488  | 2775    | 0004053                                   | 0267                                  | 14750             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | T0600     | 0361 | 34882 | 2775    |   |                                       | 14750             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0700      | 0360 | 3488  | 2775    | 0004128                                   | 0308                                  | 14766             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | T0796     | 0359 | 34881 | 2776    |   |                                       | 14781             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0800      | 0359 | 3488  | 2775    | 0004210                                   | 0350                                  | 14782             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 0900      | 0362 | 3489  | 2776    | 0004253                                   | 0392                                  | 14800             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 1000      | 0365 | 3490  | 2777    | 0004298                                   | 0435                                  | 14818             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | T1003     | 0365 | 34901 | 2776    |   |                                       | 14819             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 1100      | 0365 | 3491  | 2777    | 0004317                                   | 0478                                  | 14835             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | 1196      | 0364 | 34922 | 2778    |   |                                       | 14851             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 1200      | 0364 | 3492  | 2778    | 0004301                                   | 0521                                  | 14852             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 1300      | 0361 | 3492  | 2779    | 0004332                                   | 0564                                  | 14867             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 1400      | 0356 | 3493  | 2779    | 0004337                                   | 0608                                  | 14882             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                              |             | STD          | 1500      | 0350 | 3493  | 2780    | 0004326                                   | 0651                                  | 14896             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 187                          |             | OBS          | T1595     | 0342 | 34930 | 2781    |   |                                       | 14909             |                     |                                 |                      |                                 |                                 |                                   |    |        |



| REFERENCE                  |               | SHIP<br>CODE | LATITUDE<br>° ' /10  | LONGITUDE<br>° ' /10   | DEPTH<br>m   | MARS DEN<br>SQUARE |   | STATION TIME<br>(GMT)                 |                         | YEAR                | ORIGINATOR'S                    |                                 | DEPTH<br>TO<br>BOTTOM           | MAX.<br>DEPTH<br>OF<br>SAMPL'S  | WAVE<br>OBSERVATIONS              |      |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NODC<br>STATION<br>NUMBER |      |
|----------------------------|---------------|--------------|----------------------|------------------------|--------------|--------------------|---|---------------------------------------|-------------------------|---------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------------------|------|-----|----------------------|----------------|-----|---------------------------|------|
| CTRY<br>CODE               | ID.<br>NO.    |              |                      |                        |              | 10"                | 1"  | MO                                    | DAY                     |                     | HR./10                          | CRUISE<br>NO.                   |                                 |                                 | STATION<br>NUMBER                 | DIR. | HGT |                      | PER            | SEA |                           | TYPE |
| 311260                     | EV            |              | 55184N               | 052374W                |              | 186                | 52  | 07                                    | 23                      | 208                 | 11P                             | 10335                           | 3091                            | 16                              | 12                                | 1    | 2   |                      | X1             | 4   | 7                         | 0012 |
| WATER                      |               | WIND         |                      | BARO-<br>METER<br>(mb) | AIR TEMP. °C |                    | VIS<br>CODE                               | NO.<br>OBS.<br>DEPTHS                 | SPECIAL<br>OBSERVATIONS |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| COLOR<br>CODE              | TRANS.<br>(m) | DIR.         | SPEED<br>OF<br>FORCE |                        | DRY<br>BULB  | WET<br>BULB        |   |                                       |                         |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               |              |                      | 16                     | 511          | 159                | 106                                       | 089                                   | 8                       | 14                  |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| MESSAGE<br>TIME<br>HR 1/10 | CAS<br>NO.    | CARD<br>TYPE | DEPTH<br>m           | T °C                   | S ‰          | SIGMA-T            | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> | Σ Δ D<br>DTN. M.<br>X 10 <sup>3</sup> | SOUND<br>VELOCITY       | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | IO <sub>3</sub> -P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>2</sub> -Si<br>μg - ml/l | PH   | REU |                      |                |     |                           |      |
|                            |               | STD          | 0000                 | 0654                   | 3346         | 2629               | 0017376                                   | 0000                                  | 14752                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | 0000                 | 0654                   | 33464        | 2629               |   |                                       | 14752                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0010                 | 0581                   | 3394         | 2676               | 0012947                                   | 0015                                  | 14731                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0020                 | 0520                   | 3428         | 2710               | 0009713                                   | 0026                                  | 14712                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | 0025                 | 0494                   | 34395        | 2722               |   |                                       | 14704                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0030                 | 0474                   | 3441         | 2726               | 0008275                                   | 0035                                  | 14696                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0050                 | 0408                   | 3445         | 2736               | 0007265                                   | 0051                                  | 14673                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | 0050                 | 0408                   | 34452        | 2736               |   |                                       | 14673                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0075                 | 0358                   | 3470         | 2761               | 0004941                                   | 0066                                  | 14659                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | 0075                 | 0358                   | 34699        | 2761               |   |                                       | 14659                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0100                 | 0369                   | 3477         | 2766               | 0004528                                   | 0078                                  | 14669                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | 0100                 | 0369                   | 34771        | 2766               |   |                                       | 14669                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0125                 | 0365                   | 3481         | 2769               | 0004218                                   | 0089                                  | 14672                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0150                 | 0364                   | 3483         | 2771               | 0004050                                   | 0099                                  | 14676                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | 0150                 | 0364                   | 34834        | 2771               |   |                                       | 14676                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0200                 | 0368                   | 3486         | 2773               | 0003909                                   | 0119                                  | 14686                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | 0200                 | 0368                   | 34864        | 2773               |   |                                       | 14686                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0250                 | 0368                   | 3487         | 2774               | 0003904                                   | 0139                                  | 14694                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0300                 | 0367                   | 3487         | 2774               | 0003943                                   | 0158                                  | 14702                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | 0302                 | 0367                   | 34871        | 2774               |   |                                       | 14703                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | 0399                 | 0365                   | 34874        | 2774               |   |                                       | 14718                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0400                 | 0365                   | 3487         | 2774               | 0003981                                   | 0198                                  | 14718                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0500                 | 0364                   | 3488         | 2775               | 0004036                                   | 0238                                  | 14734                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0600                 | 0363                   | 3488         | 2775               | 0004097                                   | 0279                                  | 14750                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | T0600                | 0363                   | 34879        | 2775               |   |                                       | 14750                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0700                 | 0364                   | 3488         | 2775               | 0004182                                   | 0320                                  | 14767                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | T0796                | 0364                   | 34885        | 2775               |   |                                       | 14784                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0800                 | 0364                   | 3488         | 2775               | 0004271                                   | 0362                                  | 14784                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 0900                 | 0360                   | 3488         | 2775               | 0004306                                   | 0405                                  | 14799                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 1000                 | 0355                   | 3488         | 2776               | 0004338                                   | 0449                                  | 14814                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | T1002                | 0355                   | 34878        | 2776               |   |                                       | 14814                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 1100                 | 0361                   | 3490         | 2777               | 0004343                                   | 0492                                  | 14833                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | 1197                 | 0365                   | 34910        | 2777               |   |                                       | 14851                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 1200                 | 0365                   | 3491         | 2777               | 0004400                                   | 0536                                  | 14852                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 1300                 | 0362                   | 3492         | 2778               | 0004408                                   | 0580                                  | 14868                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 1400                 | 0360                   | 3492         | 2779               | 0004415                                   | 0624                                  | 14883                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
|                            |               | STD          | 1500                 | 0357                   | 3493         | 2779               | 0004421                                   | 0668                                  | 14899                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |
| 208                        |               | OBS          | T1597                | 0355                   | 34934        | 2780               |   |                                       | 14915                   |                     |                                 |                                 |                                 |                                 |                                   |      |     |                      |                |     |                           |      |

| REFERENCE                   |             | SHIP<br>CODE           | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | DATE<br>MO DAY HR.1/10 | MARSDEN<br>SQUARE      | STATION TIME<br>(GMT)         |             |                                       | YEAR                  | ORIGINATOR'S            |                                 | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPL'S  | WAVE<br>OBSERVATIONS            |                                   |     |         | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NDDC<br>STATION<br>NUMBER |
|-----------------------------|-------------|------------------------|------------------|-------------------|------------------------|------------------------|-------------------------------|-------------|---------------------------------------|-----------------------|-------------------------|---------------------------------|-----------------------|---------------------------------|---------------------------------|-----------------------------------|-----|---------|----------------------|----------------|-----|---------------------------|
| CHRY<br>CODE                | ID.<br>NO.  |                        |                  |                   |                        |                        | 10"                           | 1"          | MO                                    |                       | DAY                     | HR.1/10                         |                       |                                 | CRUISE<br>NO.                   | STATION<br>NUMBER                 | DIR | HGT     |                      | PER            | SEA |                           |
| 311260                      | EV          |                        | 54111N           | 05206 W           | 186 42 07 24 036       | 1968                   | 11P                           | 10336       |                                       | 2615                  | 16                      | 15                              | 2                     | 3                               |                                 | X2                                | 5   | 8       |                      |                |     | 0013                      |
|                             |             | WATER<br>COLOR<br>CODE | TEMP.<br>(°C)    | DIR.              | SPEED<br>OR<br>FORCE   | BARO-<br>METER<br>(mb) | AIR TEMP. °C                  |             | VIS.<br>CODE                          | NO.<br>OBS.<br>DEPTHS | SPECIAL<br>OBSERVATIONS |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             |                        |                  |                   |                        |                        | DRY<br>RULR                   | WET<br>RULR |                                       |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             |                        |                  |                   | 15                     | S20                    | 444                           | 072         | 072                                   | 6                     | 14                      |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| MESSAGE<br>TIME<br>HR. 1/10 | CAST<br>NO. | CARD<br>TYPE           | DEPTH (m)        | T °C              | S ‰                    | SIGMA-T                | SPECIFIC VOLUME<br>ANOMALY-30 |             | Σ Δ D<br>OYN. M.<br>X 10 <sup>3</sup> | SOUND<br>VELOCITY     | O <sub>2</sub> ml/l     | PO <sub>2</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l  | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>2</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH  | S<br>CC |                      |                |     |                           |
|                             |             | STD                    | 0000             | 0672              | 3380                   | 2653                   | 0015108                       | 0000        | 14764                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | 0000             | 0672              | 33798                  | 2653                   |                               |             | 14764                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0010             | 0639              | 3390                   | 2666                   | 0013946                       | 0015        | 14754                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0020             | 0593              | 3404                   | 2683                   | 0012354                       | 0028        | 14739                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | 0025             | 0566              | 34113                  | 2692                   |                               |             | 14729                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0030             | 0516              | 3424                   | 2708                   | 0009979                       | 0039        | 14712                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0050             | 0381              | 3461                   | 2752                   | 0005810                       | 0055        | 14664                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | 0051             | 0377              | 34621                  | 2753                   |                               |             | 14662                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0075             | 0363              | 3479                   | 2768                   | 0004301                       | 0067        | 14662                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | 0076             | 0362              | 34792                  | 2768                   |                               |             | 14662                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0100             | 0365              | 3483                   | 2771                   | 0004067                       | 0078        | 14668                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | 0101             | 0365              | 34828                  | 2771                   |                               |             | 14668                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0125             | 0365              | 3485                   | 2772                   | 0003942                       | 0088        | 14672                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0150             | 0364              | 3487                   | 2774                   | 0003817                       | 0097        | 14676                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | 0152             | 0364              | 34867                  | 2774                   |                               |             | 14677                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0200             | 0365              | 3487                   | 2774                   | 0003833                       | 0117        | 14685                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | 0203             | 0365              | 34873                  | 2774                   |                               |             | 14686                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0250             | 0365              | 3487                   | 2774                   | 0003849                       | 0136        | 14693                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0300             | 0365              | 3488                   | 2775                   | 0003878                       | 0155        | 14702                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | T0305            | 0365              | 3477P                  | 2766P                  |                               |             |                                       |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0400             | 0364              | 3488                   | 2775                   | 0003935                       | 0194        | 14718                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | 0404             | 0364              | 34879                  | 2775                   |                               |             | 14718                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0500             | 0363              | 3488                   | 2775                   | 0004004                       | 0234        | 14734                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0600             | 0362              | 3488                   | 2775                   | 0004080                       | 0274        | 14750                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | T0605            | 0362              | 34884                  | 2775                   |                               |             | 14751                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0700             | 0360              | 3488                   | 2776                   | 0004109                       | 0315        | 14766                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0800             | 0357              | 3488                   | 2776                   | 0004173                       | 0357        | 14781                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | T0802            | 0357              | 34883                  | 2776                   |                               |             | 14782                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 0900             | 0359              | 3489                   | 2776                   | 0004224                       | 0399        | 14799                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 1000             | 0361              | 3489                   | 2776                   | 0004330                       | 0441        | 14816                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | T1014            | 0361              | 34896                  | 2777                   |                               |             | 14819                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 1100             | 0363              | 3491                   | 2777                   | 0004291                       | 0484        | 14834                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 1200             | 0365              | 3492                   | 2778                   | 0004325                       | 0528        | 14852                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | T1210            | 0365              | 34925                  | 2778                   |                               |             | 14854                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 1300             | 0363              | 3493                   | 2779                   | 0004335                       | 0571        | 14868                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 1400             | 0358              | 3493                   | 2780                   | 0004333                       | 0614        | 14883                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
|                             |             | STD                    | 1500             | 0350              | 3493                   | 2780                   | 0004297                       | 0657        | 14896                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |
| 036                         |             | OBS                    | T1619            | 0337              | 34935                  | 2782                   |                               |             | 14911                                 |                       |                         |                                 |                       |                                 |                                 |                                   |     |         |                      |                |     |                           |



| REFERENCE                  |            | SHIP<br>CODE | LATITUDE<br>° 1/10 | LONGITUDE<br>° 1/10 | MO                    | DAY           | HR                              | STATION TIME<br>(GMT)                 | YEAR              | ORIGINATOR'S        |                                 | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPLING | WAVE<br>OBSERVATIONS            |   |     |        | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NODC<br>STATION<br>NUMBER |
|----------------------------|------------|--------------|--------------------|---------------------|-----------------------|---------------|---------------------------------|---------------------------------------|-------------------|---------------------|---------------------------------|-----------------------|---------------------------------|---------------------------------|---|-----|--------|----------------------|----------------|-----|---------------------------|
| CTRY<br>CODE               | IO.<br>NO. |              |                    |                     |                       |               |                                 |                                       |                   | CRUISE<br>NO.       | STATION<br>NUMBER               |                       |                                 | DIR.                            | HGT   | PER | SEA    |                      | TYPE           | AMT |                           |
| 311260                     | EV         |              | 54051N             | 05226 W             | 186                   | 42            | 07                              | 24 058                                | 1968              | 11P                 | 10337                           | 1959                  | 18                              | 15                              | 1   | 2   |        | X2                   | 5              | 8   | 0014                      |
| MASSDEN<br>SQUARE          |            |              |                    |                     | STATION TIME<br>(GMT) |               |                                 |                                       | YEAR              | ORIGINATOR'S        |                                 | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPLING | WAVE<br>OBSERVATIONS            |   |     |        | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NODC<br>STATION<br>NUMBER |
| 10"                        | 1"         | MO           | DAY                | HR                  | 1/10                  | CRUISE<br>NO. | STATION<br>NUMBER               | DIR.                                  |                   | HGT                 | PER                             |                       |                                 | SEA                             | TYPE  | AMT |        |                      |                |     |                           |
|                            |            |              |                    |                     | WATER                 |               | WIND                            |                                       | BARO-<br>METER    | AIR TEMP. °C        |                                 | VIL<br>CODE           | NO.<br>OBS.<br>DEPTHS           | SPECIAL<br>OBSERVATIONS         |   |     |        |                      |                |     |                           |
|                            |            |              |                    |                     | COLOR<br>CODE         | TRANS-<br>MIT | DIR.                            | SPEED<br>OF<br>FORCE                  | (mbars)           | DRY<br>BULB         | WET<br>BULB                     |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            |              |                    |                     |                       |               | 15 516                          |                                       | 064               | 078                 | 072                             | 5                     | 14                              |                                 |   |     |        |                      |                |     |                           |
| MESSAGE<br>TIME<br>HR 1/10 | CAS<br>NO. | CARD<br>TYPE | DEPTH (m)          | T °C                | S %                   | SIGMA-T       | SPECIFIC VOLUME<br>ANOMALY-318° | ± Δ D<br>DYN. M.<br>± 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>2</sub> -P<br>pg - ml/l | TOTAL-P<br>pg - ml/l  | NO <sub>3</sub> -N<br>pg - ml/l | NO <sub>3</sub> -N<br>pg - ml/l | SiO <sub>4</sub> -S <sub>4</sub><br>pg - ml/l | pH  | S<br>C |                      |                |     |                           |
|                            |            | STD          | 0000               | 0550                | 3341                  | 2638          | 0016585                         | 0000                                  | 14709             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | 0000               | 0550                | 33405                 | 2638          |                                 |                                       | 14709             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0010               | 0398                | 3370                  | 2678          | 0012788                         | 0015                                  | 14652             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0020               | 0291                | 3394                  | 2707          | 0010018                         | 0026                                  | 14611             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | 0022               | 0275                | 33982                 | 2712          |                                 |                                       | 14605             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0030               | 0247                | 3411                  | 2724          | 0008377                         | 0035                                  | 14596             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | 0044               | 0216                | 34268                 | 2739          |                                 |                                       | 14587             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0050               | 0216                | 3429                  | 2741          | 0006782                         | 0050                                  | 14588             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | 0065               | 0216                | 34372                 | 2748          |                                 |                                       | 14592             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0075               | 0249                | 3447                  | 2753          | 0005697                         | 0066                                  | 14609             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | 0086               | 0280                | 34563                 | 2758          |                                 |                                       | 14626             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0100               | 0310                | 3465                  | 2762          | 0004883                         | 0079                                  | 14642             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0125               | 0348                | 3477                  | 2768          | 0004354                         | 0091                                  | 14664             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | 0130               | 0353                | 34785                 | 2768          |                                 |                                       | 14667             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0150               | 0358                | 3481                  | 2770          | 0004171                         | 0101                                  | 14673             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | 0174               | 0362                | 34840                 | 2772          |                                 |                                       | 14679             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0200               | 0362                | 3485                  | 2773          | 0003957                         | 0122                                  | 14684             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0250               | 0363                | 3486                  | 2773          | 0003932                         | 0142                                  | 14692             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | 0261               | 0363                | 34867                 | 2774          |                                 |                                       | 14694             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0300               | 0364                | 3487                  | 2774          | 0003908                         | 0161                                  | 14701             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | 0347               | 0364                | 34873                 | 2774          |                                 |                                       | 14709             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0400               | 0364                | 3487                  | 2774          | 0003971                         | 0201                                  | 14718             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0500               | 0364                | 3488                  | 2775          | 0004051                         | 0241                                  | 14734             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0600               | 0362                | 3488                  | 2775          | 0004101                         | 0281                                  | 14750             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | T0665              | 0360                | 34878                 | 2775          |                                 |                                       | 14760             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0700               | 0357                | 3488                  | 2775          | 0004132                         | 0323                                  | 14765             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0800               | 0352                | 3487                  | 2776          | 0004190                         | 0364                                  | 14779             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | T0877              | 0350                | 34870                 | 2776          |                                 |                                       | 14791             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 0900               | 0351                | 3487                  | 2776          | 0004270                         | 0406                                  | 14795             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 1000               | 0353                | 3488                  | 2776          | 0004325                         | 0449                                  | 14813             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 1100               | 0355                | 3488                  | 2776          | 0004390                         | 0493                                  | 14831             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | 1102               | 0355                | 34884                 | 2776          |                                 |                                       | 14831             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 1200               | 0358                | 3487                  | 2775          | 0004612                         | 0538                                  | 14848             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 1300               | 0361                | 3487                  | 2774          | 0004732                         | 0585                                  | 14866             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | T1324              | 0362                | 34867                 | 2774          |                                 |                                       | 14871             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 1400               | 0361                | 3487                  | 2774          | 0004811                         | 0632                                  | 14883             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 1500               | 0358                | 3488                  | 2776          | 0004780                         | 0680                                  | 14899             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
|                            |            | STD          | 1750               | 0338                | 3493                  | 2781          | 0004350                         | 0795                                  | 14933             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |
| 058                        |            | OBS          | T1771              | 0336                | 34936                 | 2782          |                                 |                                       | 14936             |                     |                                 |                       |                                 |                                 |   |     |        |                      |                |     |                           |

| REFERENCE<br>CTRY<br>CODE | IO.<br>NO. | SHIP<br>CODE | LATITUDE<br>° 1/10 | LONGITUDE<br>° 1/10 | DEPTH<br>FMS | MARSDEN<br>SQUARE |    | STATION TIME<br>(GMT) |     |    |      | YEAR | ORIGINATOR'S  |                   | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPL'S | WAVE<br>OBSERVATIONS |     |     |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NODC<br>STATION<br>NUMBER |
|---------------------------|------------|--------------|--------------------|---------------------|--------------|-------------------|----|-----------------------|-----|----|------|------|---------------|-------------------|-----------------------|--------------------------------|----------------------|-----|-----|-----|----------------------|----------------|-----|---------------------------|
|                           |            |              |                    |                     |              | 10'               | 1' | MO                    | DAY | HR | 1/10 |      | CRUISE<br>NO. | STATION<br>NUMBER |                       |                                | DIR                  | NGT | PER | SEA |                      | TYPE           | AMT |                           |

|        |    |  |        |         |  |     |    |    |    |     |      |     |       |  |      |    |    |   |   |  |    |   |   |      |
|--------|----|--|--------|---------|--|-----|----|----|----|-----|------|-----|-------|--|------|----|----|---|---|--|----|---|---|------|
| 311260 | EV |  | 54032N | 05236 W |  | 186 | 42 | 07 | 24 | 100 | 1968 | 11P | 10338 |  | 1335 | 13 | 15 | 1 | 2 |  | X2 | 5 | 8 | 0015 |
|--------|----|--|--------|---------|--|-----|----|----|----|-----|------|-----|-------|--|------|----|----|---|---|--|----|---|---|------|

| WATER         |               | WIND |                      | BARO-         |             | AIR TEMP. °C |  | VIL<br>CODE | NO.<br>OBS.<br>DEPTHS | SPECIAL<br>OBSERVATIONS |
|---------------|---------------|------|----------------------|---------------|-------------|--------------|--|-------------|-----------------------|-------------------------|
| COLOR<br>CODE | TRANS.<br>(m) | DIR  | SPEED<br>OR<br>FORCE | METER<br>(mb) | DRY<br>BULB | WET<br>BULB  |  |             |                       |                         |

|  |  |    |     |     |     |     |   |    |  |  |
|--|--|----|-----|-----|-----|-----|---|----|--|--|
|  |  | 17 | S10 | 058 | 064 | 064 | 6 | 14 |  |  |
|--|--|----|-----|-----|-----|-----|---|----|--|--|

| MESSAGE<br>TIME<br>HR 1/10 | CAS<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C | S ‰   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY- $\sigma_t$ | $\Sigma \Delta \sigma$<br>DYN. M.<br>$\times 10^3$ | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>$\mu g \cdot ml/l$ | TOTAL-P<br>$\mu g \cdot ml/l$ | NO <sub>3</sub> -N<br>$\mu g \cdot ml/l$ | NO <sub>3</sub> -N<br>$\mu g \cdot ml/l$ | Si O <sub>2</sub> -Si<br>$\mu g \cdot ml/l$ | pH | 3<br>C/C |
|----------------------------|------------|--------------|-----------|------|-------|---------|--|--|-------------------|---------------------|--|-------------------------------|--|--|---|----|----------|
|                            |            | STD          | 0000      | 0516 | 3203  | 2533    | 0026533                                | 0000   | 14677             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0000      | 0516 | 32030 | 2533    |  |  | 14677             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0010      | 0575 | 3372  | 2659    | 0014538                                | 0021   | 14725             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0010      | 0575 | 33718 | 2659    |  |  | 14725             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0020      | 0506 | 3394  | 2685    | 0012084                                | 0034   | 14702             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0020      | 0506 | 33943 | 2685    |  |  | 14702             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0030      | 0362 | 3420  | 2721    | 0008720                                | 0044   | 14647             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0030      | 0362 | 34197 | 2721    |  |  | 14647             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0050      | 0276 | 3431  | 2738    | 0007115                                | 0060   | 14615             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0061      | 0274 | 34407 | 2746    |  |  | 14617             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0071      | 0301 | 34513 | 2752    |  |  | 14632             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0075      | 0306 | 3458  | 2757    | 0005356                                | 0076   | 14635             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0091      | 0323 | 34759 | 2769    |  |  | 14648             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0100      | 0331 | 3476  | 2768    | 0004263                                | 0088   | 14653             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0125      | 0347 | 3475  | 2767    | 0004464                                | 0099   | 14663             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0127      | 0348 | 34754 | 2766    |  |  | 14664             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0150      | 0353 | 3477  | 2767    | 0004423                                | 0110   | 14670             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0162      | 0355 | 34785 | 2768    |  |  | 14673             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0200      | 0360 | 3485  | 2773    | 0003930                                | 0131   | 14682             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0203      | 0360 | 34851 | 2773    |  |  | 14683             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0250      | 0360 | 3486  | 2774    | 0003905                                | 0150   | 14691             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0300      | 0361 | 3486  | 2774    | 0003952                                | 0170   | 14699             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0400      | 0361 | 3487  | 2774    | 0003970                                | 0209   | 14716             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0406      | 0361 | 34871 | 2775    |  |  | 14717             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0500      | 0360 | 3488  | 2775    | 0003971                                | 0249   | 14733             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0600      | 0359 | 3488  | 2775    | 0004044                                | 0289   | 14749             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0700      | 0358 | 3488  | 2776    | 0004117                                | 0330   | 14765             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 0761      | 0357 | 34882 | 2776    |  |  | 14775             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0800      | 0355 | 3488  | 2776    | 0004171                                | 0371   | 14780             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 0900      | 0350 | 3487  | 2776    | 0004270                                | 0414   | 14795             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 1000      | 0345 | 3487  | 2776    | 0004293                                | 0456   | 14809             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 1015      | 0344 | 34869 | 2776    |  |  | 14811             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 1100      | 0347 | 3488  | 2777    | 0004324                                | 0500   | 14827             |                     |  |                               |  |  |   |    |          |
|                            |            | STD          | 1200      | 0355 | 3490  | 2777    | 0004353                                | 0543   | 14847             |                     |  |                               |  |  |   |    |          |
| 100                        |            | OBS          | 1270      | 0364 | 34918 | 2778    |  |  | 14863             |                     |  |                               |  |  |   |    |          |

| REFERENCE      |            | SHIP<br>CODE | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | UNIT<br>METER | MARSOEN<br>SQUARE |    | STATION TIME<br>(GMT) |     | YEAR   | ORIGINATOR'S  |                   | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPL'S | WAVE<br>OBSERVATIONS |         |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NODC<br>STATION<br>NUMBER |
|----------------|------------|--------------|------------------|-------------------|---------------|-------------------|----|-----------------------|-----|--------|---------------|-------------------|-----------------------|--------------------------------|----------------------|---------|-----|----------------------|----------------|-----|---------------------------|
| CRUISE<br>CODE | IO.<br>NO. |              |                  |                   |               | 10"               | 1" | MO                    | DAY | HR./10 | CRUISE<br>NO. | STATION<br>NUMBER |                       |                                | DIR.                 | HGT PER | SEA |                      | TYPE           | AMT |                           |
| 311260         | EV         |              | 5400 N           | 052439W           |               | 186               | 42 | 07                    | 24  | 116    | 1968          | JIP 10339         | 0933                  | 08                             | 16                   | 2       | 3   | X4                   | 4              | 8   | 0016                      |

| WAVE          |               | WIND |                      | BARO-<br>METER<br>(mb) | AIR TEMP. °C |             | VIS<br>CODE | NO.<br>OBS.<br>DEPTHS | SPECIAL<br>OBSERVATIONS |
|---------------|---------------|------|----------------------|------------------------|--------------|-------------|-------------|-----------------------|-------------------------|
| COLOR<br>CODE | TRANS.<br>(m) | DIR. | SPEED<br>OR<br>FORCE |                        | DRY<br>BULB  | WET<br>BULB |             |                       |                         |
|               |               |      | 19 S10               | 058                    | 061          | 061         | 3           | 13                    |                         |

| MESSAGE<br>TIME<br>HR 1/10 | CAS<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C | S %   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-210° | $\Sigma \Delta \theta$<br>DTN. M.<br>$\times 10^3$ | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | TOTAL-P<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | NO <sub>2</sub> -N<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | NO <sub>3</sub> -N<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | SiO <sub>4</sub> -Si<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | PH | ST<br>CODE |
|----------------------------|------------|--------------|-----------|------|-------|---------|---------------------------------|--|-------------------|---------------------|--|---|--|--|--|----|------------|
|                            |            | STD          | 0000      | 0426 | 3171  | 2517    | 0028078                         | 0000   | 14635             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | 0000      | 0426 | 31705 | 2517    |                                 |  | 14635             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0010      | 0390 | 3367  | 2676    | 0012960                         | 0021   | 14648             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | 0010      | 0390 | 33667 | 2676    |                                 |  | 14648             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0020      | 0157 | 3386  | 2711    | 0009601                         | 0032   | 14551             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | 0025      | 0109 | 33956 | 2722    |                                 |  | 14532             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0030      | 0151 | 3407  | 2729    | 0007970                         | 0041   | 14553             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | 0038      | 0199 | 34197 | 2735    |                                 |  | 14577             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0050      | 0223 | 3429  | 2741    | 0006829                         | 0055   | 14591             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | 0050      | 0223 | 34291 | 2741    |                                 |  | 14591             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0075      | 0256 | 3442  | 2748    | 0006147                         | 0072   | 14612             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | 0075      | 0256 | 34418 | 2748    |                                 |  | 14612             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0100      | 0312 | 3458  | 2756    | 0005443                         | 0086   | 14642             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | 0100      | 0312 | 34578 | 2756    |                                 |  | 14642             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0125      | 0327 | 3469  | 2763    | 0004757                         | 0099   | 14654             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0150      | 0339 | 3476  | 2768    | 0004333                         | 0110   | 14664             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | 0150      | 0339 | 34764 | 2768    |                                 |  | 14664             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | 0199      | 0355 | 34834 | 2772    |                                 |  | 14680             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0200      | 0355 | 3483  | 2772    | 0004006                         | 0131   | 14680             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0250      | 0359 | 3485  | 2773    | 0003962                         | 0151   | 14691             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | 0299      | 0363 | 34867 | 2774    |                                 |  | 14700             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0300      | 0363 | 3487  | 2774    | 0003903                         | 0171   | 14701             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | T0398     | 0363 | 34873 | 2774    |                                 |  | 14717             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0400      | 0363 | 3487  | 2774    | 0003968                         | 0210   | 14717             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0500      | 0362 | 3488  | 2775    | 0004030                         | 0250   | 14733             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | T0595     | 0361 | 34877 | 2775    |                                 |  | 14749             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0600      | 0361 | 3488  | 2775    | 0004068                         | 0290   | 14750             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0700      | 0360 | 3488  | 2775    | 0004143                         | 0332   | 14766             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0800      | 0359 | 3488  | 2775    | 0004216                         | 0373   | 14782             |                     |  |   |  |  |  |    |            |
| 116                        |            | OBS          | T0842     | 0359 | 34880 | 2775    |                                 |  | 14789             |                     |  |   |  |  |  |    |            |

| REFERENCE      |            | SHIP<br>CODE | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | UNIT<br>METER | MARSOEN<br>SQUARE |    | STATION TIME<br>(GMT) |     | YEAR   | ORIGINATOR'S  |                   | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPL'S | WAVE<br>OBSERVATIONS |         |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NODC<br>STATION<br>NUMBER |
|----------------|------------|--------------|------------------|-------------------|---------------|-------------------|----|-----------------------|-----|--------|---------------|-------------------|-----------------------|--------------------------------|----------------------|---------|-----|----------------------|----------------|-----|---------------------------|
| CRUISE<br>CODE | IO.<br>NO. |              |                  |                   |               | 10"               | 1" | MO                    | DAY | HR./10 | CRUISE<br>NO. | STATION<br>NUMBER |                       |                                | DIR.                 | HGT PER | SEA |                      | TYPE           | AMT |                           |
| 311260         | EV         |              | 53558N           | 052589W           |               | 186               | 32 | 07                    | 24  | 135    | 1968          | JIP 10340         | 0357                  | 03                             | 16                   | 2       | 2   | X1                   | 7              | 2   | 0017                      |

| WATER         |               | WIND |                      | BARO-<br>METER<br>(mba) | AIR TEMP. °C |             | VIS.<br>CODE | NO.<br>OBS.<br>DEPTHS | SPECIAL<br>OBSERVATIONS |
|---------------|---------------|------|----------------------|-------------------------|--------------|-------------|--------------|-----------------------|-------------------------|
| COLOR<br>CODE | TRANS.<br>(m) | DIR. | SPEED<br>OR<br>FORCE |                         | DRY<br>BULB  | WET<br>BULB |              |                       |                         |
|               |               | 17   | S12                  | 058                     | 067          | 061         | 7            | 13                    |                         |

| MESSAGE<br>TIME<br>HR 1/10 | CAS<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C  | S %   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-210° | $\Sigma \Delta \theta$<br>DTN. M.<br>$\times 10^3$ | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | TOTAL-P<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | NO <sub>2</sub> -N<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | NO <sub>3</sub> -N<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | SiO <sub>4</sub> -Si<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | PH | ST<br>CODE |
|----------------------------|------------|--------------|-----------|-------|-------|---------|---------------------------------|--|-------------------|---------------------|--|---|--|--|--|----|------------|
|                            |            | STD          | 0000      | 0400  | 3063  | 2434    | 0035951                         | 0000   | 14610             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | 0000      | 0400  | 30630 | 2434    |                                 |  | 14610             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0010      | 0377  | 3201  | 2546    | 0025331                         | 0031   | 14620             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | 0014      | 0315  | 32378 | 2581    |                                 |  | 14599             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0020      | 0138  | 3263  | 2614    | 0018820                         | 0053   | 14526             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | 0023      | 0065  | 32803 | 2632    |                                 |  | 14496             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | 0028      | -0035 | 33156 | 2666    |                                 |  | 14456             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | 0029      | -0050 | 33280 | 2676    |                                 |  | 14451             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0030      | -0050 | 3330  | 2678    | 0012752                         | 0069   | 14451             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | 0044      | -0052 | 33480 | 2693    |                                 |  | 14455             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0050      | -0078 | 3353  | 2698    | 0010878                         | 0092   | 14445             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | 0053      | -0083 | 33553 | 2700    |                                 |  | 14443             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | 0057      | -0081 | 33592 | 2703    |                                 |  | 14445             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0075      | -0083 | 3369  | 2711    | 0009625                         | 0118   | 14449             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | 0076      | -0083 | 33701 | 2712    |                                 |  | 14449             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | 0084      | -0063 | 33772 | 2717    |                                 |  | 14461             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0100      | 0055  | 3400  | 2729    | 0007910                         | 0140   | 14521             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0125      | 0195  | 3429  | 2743    | 0006653                         | 0158   | 14591             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | T0132     | 0225  | 34357 | 2746    |                                 |  | 14607             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0150      | 0251  | 3444  | 2750    | 0005982                         | 0174   | 14622             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | T0194     | 0303  | 34616 | 2760    |                                 |  | 14654             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0200      | 0309  | 3463  | 2760    | 0005097                         | 0201   | 14658             |                     |  |   |  |  |  |    |            |
|                            |            | STD          | 0250      | 0345  | 3475  | 2766    | 0004579                         | 0226   | 14683             |                     |  |   |  |  |  |    |            |
| 135                        |            | OBS          | T0285     | 0357  | 34776 | 2767    |                                 |  | 14694             |                     |  |   |  |  |  |    |            |

| REFERENCE                   |             | SHIP<br>CODE | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | DEPTH<br>METER | MARSOEN<br>SQUARE |                                | STATION TIME<br>IGMT |                                       |                        | YEAR                | ORIGINATOR'S                    |                      | DEPTH<br>TO<br>BOTTOM           | MAX.<br>DEPTH<br>OF<br>S'AMPL'S | WAVE<br>OBSERVATIONS              |     |        |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NOOC<br>STATION<br>NUMBER |  |  |
|-----------------------------|-------------|--------------|------------------|-------------------|----------------|-------------------|--------------------------------|----------------------|---------------------------------------|------------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|-----|--------|-----|----------------------|----------------|-----|---------------------------|--|--|
| CTRY<br>CODE                | IO.<br>NO.  |              |                  |                   |                | 10'               | 1'                             | MO                   | DAY                                   | HR/1/10                |                     | CRUISE<br>NO.                   | STATION<br>NUMBER    |                                 |                                 | DIR                               | HGT | PER    | SEA |                      | TYPE           | AMT |                           |  |  |
| 311260                      | EV          |              | 53501N           | 053103W           |                | 186               | 33                             | 07                   | 24                                    | 151                    | 1968                | 11P                             | 10341                | 0250                            | 02                              | 16                                | 2   | 2      |     | X1                   | 7              | 5   | 0018                      |  |  |
|                             |             |              |                  |                   |                | WATER             |                                | WIND                 |                                       | BARO-<br>METER<br>(mb) | AIR TEMP. °C        |                                 | VIL<br>CODE          | NO.<br>OBS.<br>DEPTH            | SPECIAL<br>OBSERVATIONS         |                                   |     |        |     |                      |                |     |                           |  |  |
|                             |             |              |                  |                   |                | COLOR<br>CODE     | TRANS.<br>(m)                  | DIR.                 | SPEED<br>OR<br>FORCE                  |                        | DRY<br>BULB         | WET<br>BULB                     |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
|                             |             |              |                  |                   |                |                   |                                |                      | 17                                    | 514                    | 058                 | 067                             | 061                  | 8                               | 08                              |                                   |     |        |     |                      |                |     |                           |  |  |
| MESSINGR<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m)        | T °C              | S ‰            | SIGMA-T           | SPECIFIC VOLUME<br>ANOMALY-20° |                      | Σ Δ ρ<br>OYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY      | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH  | S<br>C |     |                      |                |     |                           |  |  |
|                             |             | STD          | 0000             | 0460              | 3173           | 2515              | 0028240                        |                      | 0000                                  | 14650                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
| 151                         |             | OBS          | 0000             | 0460              | 31727          | 2515              |                                |                      |                                       | 14650                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
|                             |             | STD          | 0010             | 0189              | 3225           | 2580              | 0022036                        |                      | 0025                                  | 14542                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
|                             |             | STD          | 0020             | -0006             | 3265           | 2624              | 0017908                        |                      | 0045                                  | 14461                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
|                             |             | STD          | 0030             | -0125             | 3292           | 2650              | 0015396                        |                      | 0062                                  | 14411                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
| 151                         |             | OBS          | 0030             | -0125             | 32922          | 2650              |                                |                      |                                       | 14411                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
|                             |             | STD          | 0050             | -0135             | 3309           | 2664              | 0014096                        |                      | 0091                                  | 14412                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
| 151                         |             | OBS          | 0050             | -0135             | 33086          | 2664              |                                |                      |                                       | 14412                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
|                             |             | STD          | 0075             | -0135             | 3322           | 2674              | 0013067                        |                      | 0125                                  | 14418                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
| 151                         |             | OBS          | 0075             | -0135             | 33218          | 2674              |                                |                      |                                       | 14418                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
|                             |             | STD          | 0100             | -0128             | 3335           | 2685              | 0012038                        |                      | 0157                                  | 14427                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
| 151                         |             | OBS          | 0100             | -0128             | 33353          | 2685              |                                |                      |                                       | 14427                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
|                             |             | STD          | 0125             | -0126             | 3342           | 2690              | 0011516                        |                      | 0186                                  | 14433                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
|                             |             | STD          | 0150             | -0108             | 3353           | 2698              | 0010744                        |                      | 0214                                  | 14447                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
| 151                         |             | OBS          | 0150             | -0108             | 33527          | 2698              |                                |                      |                                       | 14447                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
| 151                         |             | OBS          | 0190             | -0046             | 33760          | 2715              |                                |                      |                                       | 14486                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
|                             |             | STD          | 0200             | -0023             | 3383           | 2719              | 0008775                        |                      | 0263                                  | 14499                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |
| 151                         |             | OBS          | T0231            | 0066              | 34059          | 2733              |                                |                      |                                       | 14548                  |                     |                                 |                      |                                 |                                 |                                   |     |        |     |                      |                |     |                           |  |  |

| REFERENCE                   |             | SHIP<br>CODE  | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | DATE<br>MO DAY HR/10 | MARSOEN<br>SQUARE | STATION TIME<br>(GMT)          |                                       |                   | YEAR                | ORIGINATOR'S                    |                      | DEPTH<br>TO<br>BOTTOM           | MAX.<br>DEPTH<br>OF<br>S'AMPL'S | WAVE<br>OBSERVATIONS              |                   |        |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES | NOOC<br>STATION<br>NUMBER |      |
|-----------------------------|-------------|---------------|------------------|-------------------|----------------------|-------------------|--------------------------------|---------------------------------------|-------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|-------------------|--------|-----|----------------------|----------------|---------------------------|------|
| CTRY<br>CODE                | IO.<br>NO.  |               |                  |                   |                      |                   | 10'                            | 1'                                    | MO                |                     | DAY                             | HR/10                |                                 |                                 | CRUISE<br>NO.                     | STATION<br>NUMBER | DIR    | HGT |                      |                |                           | PER  |
| 311260                      | EV          |               | 5347 N           | 053266W           | 186                  | 33                | 07                             | 24                                    | 174               | 1968                | 11P                             | 10342                | 0218                            | 02                              | 16                                | 2                 | 2      |     | X1                   | 7              | 5                         | 0019 |
|                             |             | WATER         |                  | WIND              |                      | BARO-<br>METER    |                                | AIR TEMP. °C                          |                   | VIL<br>CODE         |                                 | NO.<br>OBS.<br>DEPTH |                                 | SPECIAL<br>OBSERVATIONS         |                                   |                   |        |     |                      |                |                           |      |
|                             |             | COLOR<br>CODE | TRANS.<br>mm     | DIR.              | SPEED<br>OR<br>FORCE | DRY<br>BULB       | WET<br>BULB                    | DRY<br>BULB                           | WET<br>BULB       |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
|                             |             |               |                  |                   |                      | 17                | 518                            | 054                                   | 094               | 072                 | 8                               | 09                   |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
| MESSINGR<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE  | DEPTH (m)        | T °C              | S ‰                  | SIGMA-T           | SPECIFIC VOLUME<br>ANOMALY-20° | Σ Δ ρ<br>OYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH                | S<br>C |     |                      |                |                           |      |
|                             |             | STD           | 0000             | 0425              | 3164                 | 2512              | 0028543                        | 0000                                  | 14634             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
| 174                         |             | OBS           | 0000             | 0425              | 31642                | 2512              |                                |                                       | 14634             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
|                             |             | STD           | 0010             | 0417              | 3164                 | 2512              | 0028486                        | 0029                                  | 14632             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
| 174                         |             | OBS           | 0012             | 0415              | 31640                | 2513              |                                |                                       | 14632             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
|                             |             | STD           | 0020             | 0077              | 3240                 | 2599              | 0020217                        | 0053                                  | 14495             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
| 174                         |             | OBS           | 0025             | -0074             | 32747                | 2634              |                                |                                       | 14432             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
|                             |             | STD           | 0030             | -0091             | 3281                 | 2640              | 0016357                        | 0071                                  | 14425             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
|                             |             | STD           | 0050             | -0134             | 3303                 | 2659              | 0014536                        | 0102                                  | 14411             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
| 174                         |             | OBS           | 0050             | -0134             | 33029                | 2659              |                                |                                       | 14411             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
|                             |             | STD           | 0075             | -0128             | 3319                 | 2671              | 0013341                        | 0137                                  | 14421             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
| 174                         |             | OBS           | 0075             | -0128             | 33185                | 2671              |                                |                                       | 14421             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
|                             |             | STD           | 0100             | -0124             | 3330                 | 2680              | 0012479                        | 0169                                  | 14428             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
| 174                         |             | OBS           | 0100             | -0124             | 33297                | 2680              |                                |                                       | 14428             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
|                             |             | STD           | 0125             | -0128             | 3339                 | 2688              | 0011741                        | 0199                                  | 14432             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
|                             |             | STD           | 0150             | -0131             | 3349                 | 2696              | 0010965                        | 0228                                  | 14436             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
| 174                         |             | OBS           | 0150             | -0131             | 33488                | 2696              |                                |                                       | 14436             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
| 174                         |             | OBS           | 0180             | -0106             | 33630                | 2707              |                                |                                       | 14455             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
|                             |             | STD           | 0200             | -0033             | 3383                 | 2720              | 0008726                        | 0277                                  | 14495             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |
| 174                         |             | OBS           | T0213            | 0038              | 34012                | 2731              |                                |                                       | 14532             |                     |                                 |                      |                                 |                                 |                                   |                   |        |     |                      |                |                           |      |

| REFERENCE     |                | SHIP<br>CODE | LATITUDE<br>1/10     | LONGITUDE<br>1/10 | CHART<br>NUMBER | MARSDEN<br>SQUARE | STATION TIME<br>(GMT) |              |                | YEAR        | ORIGINATOR'S          |                         | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPL'S | WAVE<br>OBSERVATIONS |     |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | HOOC<br>STATION<br>NUMBER |     |
|---------------|----------------|--------------|----------------------|-------------------|-----------------|-------------------|-----------------------|--------------|----------------|-------------|-----------------------|-------------------------|-----------------------|--------------------------------|----------------------|-----|-----|----------------------|----------------|-----|---------------------------|-----|
| CTRY<br>CODE  | ID.<br>NO.     |              |                      |                   |                 |                   | 10"                   | 1"           | MO DAY HR.1/10 |             | CRUISE<br>NO.         | STATION<br>NUMBER       |                       |                                | DIR                  | HGT | PER |                      | SEA            | TPP |                           | AMT |
| 311260        | EV             | 53455N       | 053411W              | 186               | 33 07 24        | 188               | 1968                  | 11P          | 10343          | 0207        | 02                    | 18                      | 2                     | 2                              |                      |     |     | X1                   | 4              | 6   | 0020                      |     |
|               |                | WATER        |                      | WIND              |                 | BARO-<br>METER    |                       | AIR TEMP. °C |                | VIL<br>CODE | NO.<br>OBS.<br>DEPTHS | SPECIAL<br>OBSERVATIONS |                       |                                |                      |     |     |                      |                |     |                           |     |
| COLOR<br>CODE | TRANS.<br>UNIT | DIR          | SPEED<br>OR<br>FORCE | METER<br>(mbars)  | DRY<br>BULB     | WET<br>BULB       |                       |              |                |             |                       |                         |                       |                                |                      |     |     |                      |                |     |                           |     |
|               |                |              |                      | 21                | 512             | 041               |                       |              |                |             |                       |                         |                       |                                |                      | 083 | 078 | 8                    | 08             |     |                           |     |

| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C  | S ‰   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-20° | $\Sigma \Delta$<br>DYN. M.<br>$\times 10^3$ | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | TOTAL-P<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | NO <sub>3</sub> -N<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | NO <sub>3</sub> -N<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | SiO <sub>4</sub> -Si<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | pH | 1<br>CC |
|----------------------------|-------------|--------------|-----------|-------|-------|---------|--------------------------------|---|-------------------|---------------------|--|---|--|--|--|----|---------|
|                            |             | STD          | 0000      | 0558  | 3210  | 2534    | 0026462                        | 0000  | 14695             |                     |  |   |  |  |  |    |         |
| 188                        |             | OBS          | 0000      | 0558  | 32100 | 2534    |                                |   | 14695             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0010      | 0496  | 3214  | 2544    | 0025505                        | 0026  | 14672             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0020      | 0434  | 3218  | 2554    | 0024588                        | 0051  | 14648             |                     |  |   |  |  |  |    |         |
| 188                        |             | OBS          | 0020      | 0434  | 32180 | 2554    |                                |   | 14648             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0030      | 0000  | 3285  | 2639    | 0016403                        | 0072  | 14468             |                     |  |   |  |  |  |    |         |
| 188                        |             | OBS          | 0034      | -0103 | 33023 | 2657    |                                |   | 14423             |                     |  |   |  |  |  |    |         |
| 188                        |             | OBS          | 0049      | -0133 | 33160 | 2669    |                                |   | 14414             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0050      | -0132 | 3317  | 2670    | 0013460                        | 0101  | 14414             |                     |  |   |  |  |  |    |         |
| 188                        |             | OBS          | 0073      | -0119 | 33347 | 2684    |                                |   | 14427             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0075      | -0119 | 3336  | 2685    | 0012028                        | 0133  | 14427             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0100      | -0116 | 3349  | 2696    | 0011026                        | 0162  | 14435             |                     |  |   |  |  |  |    |         |
| 188                        |             | OBS          | 0103      | -0116 | 33508 | 2697    |                                |   | 14435             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0125      | -0102 | 3359  | 2703    | 0010297                        | 0189  | 14447             |                     |  |   |  |  |  |    |         |
| 188                        |             | OBS          | 0147      | -0055 | 33746 | 2714    |                                |   | 14474             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0150      | -0046 | 3377  | 2716    | 0009138                        | 0213  | 14479             |                     |  |   |  |  |  |    |         |
| 188                        |             | OBS          | T0186     | 0108  | 34187 | 2741    |                                |   | 14561             |                     |  |   |  |  |  |    |         |

| REFERENCE     |                | SHIP<br>CODE | LATITUDE<br>1/10     | LONGITUDE<br>1/10 | CHART<br>NUMBER | MARSDEN<br>SQUARE | STATION TIME<br>(GMT) |              |                | YEAR         | ORIGINATOR'S          |                         | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPL'S | WAVE<br>OBSERVATIONS |     |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | HOOC<br>STATION<br>NUMBER |     |
|---------------|----------------|--------------|----------------------|-------------------|-----------------|-------------------|-----------------------|--------------|----------------|--------------|-----------------------|-------------------------|-----------------------|--------------------------------|----------------------|-----|-----|----------------------|----------------|-----|---------------------------|-----|
| CTRY<br>CODE  | ID.<br>NO.     |              |                      |                   |                 |                   | 10"                   | 1"           | MO DAY HR.1/10 |              | CRUISE<br>NO.         | STATION<br>NUMBER       |                       |                                | DIR                  | HGT | PER |                      | SEA            | TPP |                           | AMT |
| 311260        | EV             | 53442N       | 053554W              | 186               | 33 07 24 202    | 1968              | 11P                   | 10344        | 0190           | 02           | 18                    | 2                       | 2                     |                                |                      |     | X1  | 6                    | 7              |     | 0021                      |     |
|               |                | WATER        |                      | WIND              |                 | BARO-<br>METER    |                       | AIR TEMP. °C |                | VIS.<br>CODE | NO.<br>OBS.<br>DEPTHS | SPECIAL<br>OBSERVATIONS |                       |                                |                      |     |     |                      |                |     |                           |     |
| COLOR<br>CODE | TRANS.<br>UNIT | DIR          | SPEED<br>OR<br>FORCE | METER<br>(mbars)  | DRY<br>BULB     | WET<br>BULB       |                       |              |                |              |                       |                         |                       |                                |                      |     |     |                      |                |     |                           |     |
|               |                |              |                      | 23                | 510             | 041               |                       |              |                |              |                       |                         |                       |                                |                      | 083 | 072 | 7                    | 08             |     |                           |     |

| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C  | S ‰   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-20° | $\Sigma \Delta$<br>DYN. M.<br>$\times 10^3$ | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | TOTAL-P<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | NO <sub>3</sub> -N<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | NO <sub>3</sub> -N<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | SiO <sub>4</sub> -Si<br>$\mu\text{g} \cdot \text{ml}^{-1}$ | pH | 1<br>CC |
|----------------------------|-------------|--------------|-----------|-------|-------|---------|--------------------------------|---|-------------------|---------------------|--|---|--|--|--|----|---------|
|                            |             | STD          | 0000      | 0585  | 3192  | 2517    | 0028092                        | 0000  | 14704             |                     |  |   |  |  |  |    |         |
| 202                        |             | OBS          | 0000      | 0585  | 31923 | 2517    |                                |   | 14704             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0010      | 0516  | 3204  | 2534    | 0026466                        | 0027  | 14679             |                     |  |   |  |  |  |    |         |
| 202                        |             | OBS          | 0015      | 0392  | 32253 | 2563    |                                |   | 14631             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0020      | 0151  | 3267  | 2616    | 0018597                        | 0050  | 14532             |                     |  |   |  |  |  |    |         |
| 202                        |             | OBS          | 0025      | -0035 | 33001 | 2653    |                                |   | 14453             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0030      | -0057 | 3308  | 2660    | 0014409                        | 0066  | 14445             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0050      | -0117 | 3332  | 2682    | 0012354                        | 0093  | 14424             |                     |  |   |  |  |  |    |         |
| 202                        |             | OBS          | 0051      | -0119 | 33326 | 2682    |                                |   | 14423             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0075      | -0130 | 3348  | 2695    | 0011075                        | 0122  | 14424             |                     |  |   |  |  |  |    |         |
| 202                        |             | OBS          | 0076      | -0130 | 33489 | 2696    |                                |   | 14424             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0100      | -0121 | 3359  | 2704    | 0010245                        | 0149  | 14434             |                     |  |   |  |  |  |    |         |
| 202                        |             | OBS          | 0101      | -0120 | 33593 | 2704    |                                |   | 14434             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0125      | -0079 | 3380  | 2719    | 0008779                        | 0173  | 14460             |                     |  |   |  |  |  |    |         |
|                            |             | STD          | 0150      | -0004 | 3391  | 2725    | 0008271                        | 0194  | 14501             |                     |  |   |  |  |  |    |         |
| 202                        |             | OBS          | 0152      | 0003  | 33920 | 2725    |                                |   | 14504             |                     |  |   |  |  |  |    |         |
| 202                        |             | OBS          | T0185     | 0159P | 33921 | 2716P   |                                |   |                   |                     |  |   |  |  |  |    |         |



| REFERENCE                  |             | SHIP<br>CODE | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | HAZARD<br>SQUARE | STATION TIME (GMT) |      |                                 |                | YEAR                                  | ORIGINATOR'S |                   | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPLES  | WAVE<br>OBSERVATIONS |                                 |                                 |                                   | WEA-<br>TEHR<br>CODE | CLOUD<br>CODES |      | NOOC<br>STATION<br>NUMBER |      |
|----------------------------|-------------|--------------|------------------|-------------------|------------------|--------------------|------|---------------------------------|----------------|---------------------------------------|--------------|-------------------|-----------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----------------------|----------------|------|---------------------------|------|
| CTRY<br>CODE               | IO.<br>NO.  |              |                  |                   |                  | 10"                | 1"   | M.O                             | OAT            |                                       | HR. 1/10     | CRUISE<br>NO.     |                       |                                 | STATION<br>NUMBER    | DIR.                            | HGT                             | PER                               |                      | SEA            | TYPE |                           | AMT  |
| 311260                     | EV          | 53411N       | 054111W          | 186               | 34               | 07                 | 24   | 216                             | 1968           | JIP                                   | 10345        | 0181              | 02                    | 17                              | 2                    | 2                               |                                 |                                   | X1                   | 6              | 7    |                           | 0022 |
|                            |             |              |                  |                   | WATER            |                    | WIND |                                 | BARO-<br>METER |                                       | AIR TEMP. °C |                   | VIS. CODE             |                                 | NO. OBS. DEPTHS      |                                 | SPECIAL OBSERVATIONS            |                                   |                      |                |      |                           |      |
|                            |             |              |                  |                   | COLOR<br>CODE    | TRANS.<br>(m)      | DIR. | SPEED<br>OR<br>FORCE            | DRY<br>BULB    | WET<br>BULB                           | DRY<br>BULB  | WET<br>BULB       | DRY<br>BULB           | WET<br>BULB                     |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            |             |              |                  |                   |                  |                    |      | 20                              | S10            | 041                                   | 089          | 078               | 7                     | 08                              |                      |                                 |                                 |                                   |                      |                |      |                           |      |
| MESSAGE<br>TIME<br>HR 1/10 | CARD<br>NO. | CARD<br>TYPE | DEPTH (m)        | T °C              | S ‰              | SIGMA-T            |      | SPECIFIC VOLUME<br>ANOMALY-210° |                | Σ Δ σ<br>DTN. M.<br>X 10 <sup>3</sup> |              | SOUND<br>VELOCITY | O <sub>2</sub> ml/l   | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>2</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH                   |                |      |                           |      |
|                            |             | STD          | 0000             | 0540              | 3191             | 2521               |      | 0027669                         |                | 0000                                  |              | 14685             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            | 216         | OBS          | 0000             | 0540              | 31913            | 2521               |      |                                 |                |                                       |              | 14685             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            |             | STD          | 0010             | 0440              | 3202             | 2540               |      | 0025845                         |                | 0027                                  |              | 14647             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            |             | STD          | 0020             | 0273              | 3257             | 2599               |      | 0020242                         |                | 0050                                  |              | 14585             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            | 216         | OBS          | 0020             | 0273              | 32568            | 2599               |      |                                 |                |                                       |              | 14585             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            | 216         | OBS          | 0025             | 0165              | 33007            | 2642               |      |                                 |                |                                       |              | 14544             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            |             | STD          | 0030             | 0059              | 3314             | 2660               |      | 0014481                         |                | 0067                                  |              | 14499             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            | 216         | OBS          | 0035             | -0027             | 33257            | 2673               |      |                                 |                |                                       |              | 14462             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            |             | STD          | 0050             | -0061             | 3337             | 2684               |      | 0012166                         |                | 0094                                  |              | 14450             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            | 216         | OBS          | 0070             | -0084             | 33521            | 2697               |      |                                 |                |                                       |              | 14445             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            |             | STD          | 0075             | -0077             | 3355             | 2699               |      | 0010701                         |                | 0122                                  |              | 14449             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            |             | STD          | 0100             | -0045             | 3371             | 2710               |      | 0009656                         |                | 0148                                  |              | 14471             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            |             | STD          | 0125             | -0012             | 3386             | 2721               |      | 0008634                         |                | 0171                                  |              | 14492             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            | 216         | OBS          | 0130             | -0005             | 33889            | 2723               |      |                                 |                |                                       |              | 14497             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            |             | STD          | 0150             | 0155              | 3428             | 2745               |      | 0006441                         |                | 0190                                  |              | 14578             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            | 216         | OBS          | 0160             | 0192              | 34370            | 2750               |      |                                 |                |                                       |              | 14597             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |
|                            | 216         | OBS          | T0173            | 0198              | 34388            | 2751               |      |                                 |                |                                       |              | 14602             |                       |                                 |                      |                                 |                                 |                                   |                      |                |      |                           |      |

| REFERENCE |      | SHIP   | LATITUDE  | LONGITUDE | HAZARD | WINDSPEED |                 | STATION TIME      |          | YEAR                | ORIGINATOR'S       |              | DEPTH              | MAX.               | WAVE                 |          |     | WEA-                 | CLOUD | NOOC  |         |      |
|-----------|------|--------|-----------|-----------|--------|-----------|-----------------|-------------------|----------|---------------------|--------------------|--------------|--------------------|--------------------|----------------------|----------|-----|----------------------|-------|-------|---------|------|
| CTRY      | NO.  | CODE   | " 1/10    | " 1/10    | BUOY   | SQ        | KT              | M.O               | OAT      | HR. 1/10            | CRUISE             | STATION      | TO                 | DEPTH              | DIR.                 | HGT      | PER | SEA                  | TH    | CODES | STATION |      |
| CODE      |      |        |           |           |        |           |                 |                   |          |                     | NO.                | NUMBER       | BOTTOM             | OF                 |                      |          |     |                      | TYPE  | NUM   | NUMBER  |      |
| 311260    | EV   | 53366N | 05429 W   |           |        | 186       | 34              | 07                | 24       | 231                 | 1968               | JIP          | 10346              | 0180               | 02                   | 19       | 2   | 3                    |       | X1    | 77      | 0023 |
|           |      |        |           |           |        | WATER     |                 | WIND              |          | BARO-               |                    | AIR TEMP. °C |                    | VIS. CODE          |                      | NO. OBS. |     | SPECIAL OBSERVATIONS |       |       |         |      |
|           |      |        |           |           |        | COLOR     | TRANS.          | DIR.              | SPEED    | METER               | DRY                | WET          |                    |                    |                      |          |     |                      |       |       |         |      |
|           |      |        |           |           |        | CODE      | (m)             |                   | OR FORCE | (mb)                | BULB               | BULB         |                    |                    |                      |          |     |                      |       |       |         |      |
|           |      |        |           |           |        |           |                 | 21                | S08      | 041                 | 072                | 067          | 8                  | 08                 |                      |          |     |                      |       |       |         |      |
| MESSAGE   | CARD | CARD   | DEPTH (m) | T °C      | S %    | SIGMA-T   | SPECIFIC VOLUME | Σ Δ σ             | SOUND    | O <sub>2</sub> ml/l | PO <sub>4</sub> -P | TOTAL-P      | NO <sub>3</sub> -N | NO <sub>2</sub> -N | SiO <sub>4</sub> -Si | pH       | S   |                      |       |       |         |      |
| TIME      | NO.  | TYPE   |           |           |        |           | ANOMALY-210°    | DTN. M.           | VELOCITY |                     | μg - ml/l          | μg - ml/l    | μg - ml/l          | μg - ml/l          | μg - ml/l            |          | C   |                      |       |       |         |      |
| HR 1/10   |      |        |           |           |        |           |                 | X 10 <sup>3</sup> |          |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           |      | STD    | 0000      | 0513      | 3183   | 2517      | 0028035         | 0000              | 14673    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           | 231  | OBS    | 0000      | 0513      | 31826  | 2517      |                 |                   | 14673    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           |      | STD    | 0010      | 0500      | 3186   | 2521      | 0027639         | 0028              | 14670    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           | 231  | OBS    | 0015      | 0494      | 31880  | 2524      |                 |                   | 14669    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           |      | STD    | 0020      | 0242      | 3228   | 2579      | 0022186         | 0053              | 14567    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           | 231  | OBS    | 0025      | 0055      | 32591  | 2616      |                 |                   | 14489    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           |      | STD    | 0030      | -0016     | 3276   | 2633      | 0017020         | 0072              | 14459    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           | 231  | OBS    | 0040      | -0123     | 33036  | 2659      |                 |                   | 14415    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           |      | STD    | 0050      | -0124     | 3314   | 2668      | 0013713         | 0103              | 14418    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           |      | STD    | 0075      | -0127     | 3335   | 2684      | 0012094         | 0135              | 14423    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           | 231  | OBS    | 0075      | -0127     | 33348  | 2684      |                 |                   | 14423    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           |      | STD    | 0100      | -0113     | 3350   | 2697      | 0010930         | 0164              | 14436    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           | 231  | OBS    | 0100      | -0113     | 33504  | 2697      |                 |                   | 14436    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           |      | STD    | 0125      | -0069     | 3370   | 2711      | 0009582         | 0190              | 14464    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           |      | STD    | 0150      | -0031     | 3385   | 2721      | 0008619         | 0213              | 14487    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           | 231  | OBS    | 0150      | -0031     | 33847  | 2721      |                 |                   | 14487    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |
|           | 231  | OBS    | T0168     | -0007     | 33919  | 2726      |                 |                   | 14502    |                     |                    |              |                    |                    |                      |          |     |                      |       |       |         |      |

| REFERENCE<br>CRUISE NO.    | SHIP<br>CODE | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | MOON<br>PHASE | PARSON<br>SQUARE |                | STATION TIME<br>(GMT) |   | YEAR           | ORIGINATOR'S                          |                   | DEPTH<br>TO<br>BOTTOM | MATH.<br>DEPTH<br>OF<br>SAMPL'S | WAVE<br>OBSERVATIONS            |                         |                                 | WEA-<br>THER<br>CODE            | CLOUD<br>CODES                    |     | NOOC<br>STATION<br>NUMBER |      |
|----------------------------|--------------|------------------|-------------------|---------------|------------------|----------------|-----------------------|---|----------------|---------------------------------------|-------------------|-----------------------|---------------------------------|---------------------------------|-------------------------|---------------------------------|---------------------------------|-----------------------------------|-----|---------------------------|------|
|                            |              |                  |                   |               | 10"              | 1"             | M/D                   | DAY HR, 1/10                              |                | CRUISE<br>NO.                         | STATION<br>NUMBER |                       |                                 | DR.                             | HGT                     | PER                             |                                 | SIA                               | TRF |                           | AMT  |
| 311260                     | EV           | 52500N           | 054060W           |               | 186              | 24             | 07                    | 25 036                                    | 1968           | 11P                                   | 10347             | 0309                  | 03                              | 22                              | 1                       | 3                               |                                 | X1                                | 7   | 6                         | 0024 |
|                            |              |                  |                   |               | WATER            |                | WIND                  |   | BARO-<br>METER |                                       | AIR TEMP. °C      |                       | VIS.<br>CODE                    | NO.<br>OBS.<br>DEPTH            | SPECIAL<br>OBSERVATIONS |                                 |                                 |                                   |     |                           |      |
|                            |              |                  |                   |               | COLOR<br>CODE    | TRANS.<br>UNIT | DIR.                  | SPEED<br>OR<br>FORCE                      | UNIT           | DRY<br>BULB                           | WET<br>BULB       |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
|                            |              |                  |                   |               |                  |                |                       | 26  | 507            | 088                                   | 083               | 072                   | 7                               | 10                              |                         |                                 |                                 |                                   |     |                           |      |
| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO.  | CARD<br>TYPE     | DEPTH (m)         | T °C          | S ‰              | SIGMA-T        |                       | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> |                | Σ Δ σ<br>OYN. M.<br>x 10 <sup>3</sup> |                   | SOUND<br>VELOCITY     | O <sub>2</sub> ml/l             | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l    | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH  | SC                        |      |
|                            |              | STD              | 0000              | 0594          | 3196             | 2519           |                       | 0027902                                   |                | 0000                                  |                   | 14708                 |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
| 036                        | 08S          | 0000             | 0594              | 31962         | 2519             |                |                       |   |                |                                       |                   | 14708                 |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
|                            | STD          | 0010             | 0594              | 3197          | 2519             |                | 0027874               |   | 0028           |                                       | 14710             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
| 036                        | 08S          | 0010             | 0594              | 31967         | 2519             |                |                       |   |                |                                       | 14710             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
|                            | STD          | 0020             | 0207              | 3266          | 2612             |                | 0019051               |   | 0051           |                                       | 14557             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
| 036                        | 08S          | 0020             | 0207              | 32660         | 2612             |                |                       |   |                |                                       | 14557             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
|                            | STD          | 0030             | -0026             | 3299          | 2652             |                | 0015197               |   | 0068           |                                       | 14458             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
| 036                        | 08S          | 0030             | -0026             | 32993         | 2652             |                |                       |   |                |                                       | 14458             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
|                            | STD          | 0050             | -0115             | 3325          | 2676             |                | 0012882               |   | 0097           |                                       | 14424             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
| 036                        | 08S          | 0050             | -0115             | 33252         | 2676             |                |                       |   |                |                                       | 14424             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
|                            | STD          | 0075             | -0114             | 3341          | 2689             |                | 0011662               |   | 0127           |                                       | 14431             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
|                            | STD          | 0100             | -0112             | 3355          | 2700             |                | 0010612               |   | 0155           |                                       | 14437             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
| 036                        | 08S          | 0100             | -0112             | 33546         | 2700             |                |                       |   |                |                                       | 14437             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
|                            | STD          | 0125             | -0087             | 3367          | 2709             |                | 0009741               |   | 0181           |                                       | 14455             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
|                            | STD          | 0150             | -0066             | 3376          | 2715             |                | 0009158               |   | 0204           |                                       | 14470             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
| 036                        | 08S          | 0150             | -0066             | 33756         | 2715             |                |                       |   |                |                                       | 14470             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
| 036                        | 08S          | 0199             | -0035             | 33852         | 2722             |                |                       |   |                |                                       | 14494             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
|                            | STD          | 0200             | -0034             | 3385          | 2722             |                | 0008539               |   | 0248           |                                       | 14494             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
|                            | STD          | 0250             | 0024              | 3397          | 2729             |                | 0007936               |   | 0290           |                                       | 14531             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
| 036                        | 08S          | 0279             | 0057              | 34041         | 2732             |                |                       |   |                |                                       | 14552             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |
| 036                        | 08S          | T0291            | 0087              | 34125         | 2737             |                |                       |   |                |                                       | 14568             |                       |                                 |                                 |                         |                                 |                                 |                                   |     |                           |      |

| REFERENCE                  |             | SHIP<br>CODE | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | MOON<br>PHASE | PARSON<br>SQUARE |   | STATION TIME<br>(GMT)                 |                      | YEAR                | ORIGINATOR'S                    |                      | DEPTH<br>TO<br>BOTTOM           | MAX.<br>DEPTH<br>OF<br>SAMPL'S  | WAVE<br>OBSERVATIONS              |                         |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NOOC<br>STATION<br>NUMBER |  |
|----------------------------|-------------|--------------|------------------|-------------------|---------------|------------------|---|---------------------------------------|----------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|-------------------------|-----|----------------------|----------------|-----|---------------------------|--|
| CITY<br>CODE               | ID.<br>NO.  |              |                  |                   |               | 10"              | 1"  | M/D                                   | DAY<br>HR, 1/10      |                     | CRUISE<br>NO.                   | STATION<br>NUMBER    |                                 |                                 | DIR.                              | HGT<br>PER              | SEA |                      | TRF            | AMT |                           |  |
|                            |             |              |                  |                   |               |                  |   |                                       |                      |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
| 311260                     | EV          | 52535N       | 053507W          | 186               | 23            | 07               | 25  | 052                                   | 1968                 | 11P                 | 10348                           | 0455                 | 04                              | 22                              | 2                                 | 3                       |     | X1                   | 7              | 6   | 0025                      |  |
|                            |             |              |                  |                   |               | WATER            |   | WIND                                  |                      | BARO-<br>METER      |                                 | AIR TEMP. °C         |                                 | VIS.<br>CODE                    | NO.<br>OBS.<br>DEPTH              | SPECIAL<br>OBSERVATIONS |     |                      |                |     |                           |  |
|                            |             |              |                  |                   |               | COLOR<br>CODE    | TRANS.<br>UNIT                            | DIR.                                  | SPEED<br>OR<br>FORCE | UNIT                | DRY<br>BULB                     | WET<br>BULB          |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             |              |                  |                   |               |                  |   |                                       | 26                   | 507                 | 095                             | 083                  | 079                             | 7                               | 10                                |                         |     |                      |                |     |                           |  |
| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m)        | T °C              | S ‰           | SIGMA-T          | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> | Σ Δ σ<br>OYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY    | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH                      | SC  |                      |                |     |                           |  |
|                            |             | STD          | 0000             | 0500              | 3189          | 2524             | 0027403                                   | 0000                                  | 14669                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            | 052         | 08S          | 0000             | 0500              | 31892         | 2524             |   |                                       | 14669                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0010             | 0495              | 3188          | 2524             | 0027434                                   | 0027                                  | 14668                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            | 052         | 08S          | 0010             | 0495              | 31882         | 2524             |   |                                       | 14668                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0020             | 0072              | 3247          | 2605             | 0019688                                   | 0051                                  | 14494                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            | 052         | 08S          | 0020             | 0072              | 32466         | 2605             |   |                                       | 14494                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0030             | 0071              | 3284          | 2635             | 0016801                                   | 0069                                  | 14500                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            | 052         | 08S          | 0030             | 0071              | 32844         | 2635             |   |                                       | 14500                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0050             | -0135             | 3304          | 2660             | 0014457                                   | 0100                                  | 14411                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            | 052         | 08S          | 0050             | -0135             | 33039         | 2660             |   |                                       | 14411                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0075             | -0130             | 3321          | 2673             | 0013143                                   | 0135                                  | 14420                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0100             | -0124             | 3335          | 2684             | 0012081                                   | 0167                                  | 14429                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            | 052         | 08S          | 0100             | -0124             | 33349         | 2684             |   |                                       | 14429                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0125             | -0118             | 3345          | 2692             | 0011312                                   | 0196                                  | 14437                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0150             | -0112             | 3356          | 2701             | 0010516                                   | 0223                                  | 14446                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            | 052         | 08S          | 0150             | -0112             | 33555         | 2701             |   |                                       | 14446                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0200             | -0050             | 3378          | 2717             | 0009028                                   | 0272                                  | 14486                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            | 052         | 08S          | T0201            | -0048             | 33785         | 2717             |   |                                       | 14487                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0250             | 0112              | 3398          | 2724             | 0008430                                   | 0316                                  | 14571                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0300             | 0233              | 3416          | 2729             | 0008017                                   | 0357                                  | 14635                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            | 052         | 08S          | T0312            | 0255              | 3378P         | 2697P            |   |                                       |                      |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            |             | STD          | 0400             | 0343              | 3443          | 2741             | 0007076                                   | 0432                                  | 14703                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |
|                            | 052         | 08S          | T0425            | 0343              | 34479         | 2745             |   |                                       | 14708                |                     |                                 |                      |                                 |                                 |                                   |                         |     |                      |                |     |                           |  |



| REFERENCE<br>CITE<br>CODE | SHIP<br>ID. NO. | SHIP<br>CODE | LATITUDE<br>1/10     | LONGITUDE<br>1/10      | DRIFT<br>INCHES | M/R SCEN<br>SQUARE |              | STATION TIME<br>(GMT) |                         | YEAR | ORIGINATOR'S |               | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPLE'S | WAVE<br>OBSERVATIONS |      |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES | TYPE (AMT) | NODC<br>STATION<br>NUMBER |      |
|---------------------------|-----------------|--------------|----------------------|------------------------|-----------------|--------------------|--------------|-----------------------|-------------------------|------|--------------|---------------|-----------------------|---------------------------------|----------------------|------|-----|----------------------|----------------|------------|---------------------------|------|
|                           |                 |              |                      |                        |                 | 10"                | 1"           | M/D                   | DAY                     |      | HR./10       | CRUISE<br>NO. |                       |                                 | STATION<br>NUMBER    | DIR. | HGT |                      |                |            |                           | PER  |
| 311260                    | EV              |              | 52565N               | 053357W                | 186             | 23                 | 07           | 25                    | 071                     | 1968 | 11P          | 10349         | 0528                  | 05                              | 19                   | 1    | 2   |                      | X1             | 7          | 7                         | 0026 |
|                           |                 |              |                      |                        |                 |                    |              |                       |                         |      |              |               |                       |                                 |                      |      |     |                      |                |            |                           |      |
| WAVE                      |                 | WIND         |                      | AIR TEMP. °C           |                 |                    |              |                       |                         |      |              |               |                       |                                 |                      |      |     |                      |                |            |                           |      |
| COLOR<br>CODE             | TRANS.<br>(m)   | DIR.         | SPEED<br>OF<br>FORCE | BARO-<br>METER<br>(mb) | DRY<br>BULB     | WET<br>BULB        | VIS.<br>CODE | NO.<br>OBS.<br>DEPTHS | SPECIAL<br>OBSERVATIONS |      |              |               |                       |                                 |                      |      |     |                      |                |            |                           |      |
|                           |                 |              | 24                   | 509                    | 095             | 061                | 056          | 6                     | 11                      |      |              |               |                       |                                 |                      |      |     |                      |                |            |                           |      |

| MESSAGE<br>TIME<br>HR 1/10 | CASE<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C  | S ‰   | SIGMA-T | SPECIFIC VOLUME<br>AND MALT-210 <sup>2</sup> | Σ Δ D<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>2</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SIO <sub>4</sub> -Si<br>μg - ml/l | pH | 1<br>C |
|----------------------------|-------------|--------------|-----------|-------|-------|---------|--|---------------------------------------|-------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----|--------|
|                            |             | STD          | 0000      | 0364  | 3091  | 2460    | 0033514                                      | 0000                                  | 14598             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 071                        |             | OBS          | 0000      | 0364  | 30911 | 2460    |  |                                       | 14598             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0010      | 0351  | 3152  | 2509    | 0028812                                      | 0031                                  | 14603             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 071                        |             | OBS          | 0010      | 0351  | 31519 | 2509    |  |                                       | 14603             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0020      | 0323  | 3170  | 2526    | 0027235                                      | 0059                                  | 14594             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 071                        |             | OBS          | 0020      | 0323  | 31697 | 2526    |  |                                       | 14594             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0030      | 0025  | 3289  | 2642    | 0016191                                      | 0081                                  | 14480             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 071                        |             | OBS          | 0030      | 0025  | 32893 | 2642    |  |                                       | 14480             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0050      | -0111 | 3315  | 2668    | 0013714                                      | 0111                                  | 14424             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 071                        |             | OBS          | 0050      | -0111 | 33145 | 2668    |  |                                       | 14424             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0075      | -0001 | 3359  | 2699    | 0010739                                      | 0141                                  | 14485             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0100      | 0083  | 3393  | 2721    | 0008637                                      | 0166                                  | 14532             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 071                        |             | OBS          | 0100      | 0083  | 33926 | 2721    |  |                                       | 14532             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0125      | 0128  | 3409  | 2732    | 0007685                                      | 0186                                  | 14559             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0150      | 0171  | 3425  | 2741    | 0006822                                      | 0204                                  | 14584             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 071                        |             | OBS          | 0150      | 0171  | 34245 | 2741    |  |                                       | 14584             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0200      | 0250  | 3449  | 2754    | 0005625                                      | 0235                                  | 14630             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 071                        |             | OBS          | 0200      | 0250  | 34490 | 2754    |  |                                       | 14630             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0250      | 0284  | 3459  | 2759    | 0005203                                      | 0262                                  | 14655             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0300      | 0313  | 3468  | 2764    | 0004803                                      | 0287                                  | 14677             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 071                        |             | OBS          | 0300      | 0313  | 34684 | 2764    |  |                                       | 14677             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0400      | 0357  | 3482  | 2771    | 0004302                                      | 0333                                  | 14714             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 071                        |             | OBS          | T0406     | 0358  | 34827 | 2771    |  |                                       | 14715             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0500      | 0361  | 3486  | 2774    | 0004128                                      | 0375                                  | 14733             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 071                        |             | OBS          | T0510     | 0361  | 34863 | 2774    |  |                                       | 14734             |                     |                                 |                      |                                 |                                 |                                   |    |        |

| REFERENCE     |              | SHIP<br>CODE         | LATITUDE<br>1/10 | LONGITUDE<br>1/10     | DRIFT<br>INCHES | M/R SCEN<br>SQUARE |      | STATION TIME<br>(GMT) |                      |        | YEAR  | ORIGINATOR'S  |                   | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPLE'S | WAVE<br>OBSERVATIONS |     |     |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES | TYPE (AMT) | NODC<br>STATION<br>NUMBER |
|---------------|--------------|----------------------|------------------|-----------------------|-----------------|--------------------|------|-----------------------|----------------------|--------|-------|---------------|-------------------|-----------------------|---------------------------------|----------------------|-----|-----|-----|----------------------|----------------|------------|---------------------------|
| CITE<br>CODE  | ID.<br>NO.   |                      |                  |                       |                 | 10"                | 1"   | M/D                   | DAY                  | HR./10 |       | CRUISE<br>NO. | STATION<br>NUMBER |                       |                                 | DIR.                 | HGT | PER | SEA |                      |                |            |                           |
| 311260        | EV           | 53004N               | 053180W          | 186                   | 33              | 07                 | 25   | 087                   | 1968                 | 11P    | 10350 | 0549          | 05                | 22                    | 1                               | 2                    |     |     | X1  | 6                    | 7              |            | 0027                      |
| WAVE          |              | WIND                 |                  | BAR-<br>METER<br>(mb) | AIR TEMP. °C    |                    | VIS. | ND,<br>DYS.<br>DEPTHS | SPECIAL OBSERVATIONS |        |       |               |                   |                       |                                 |                      |     |     |     |                      |                |            |                           |
| COLOR<br>CODE | DIR.<br>(mi) | SPEED<br>OR<br>FORCE | DRY<br>BULB      |                       | WET<br>BULB     |                    |      |                       |                      |        |       |               |                   |                       |                                 |                      |     |     |     |                      |                |            |                           |
|               |              | 25                   | 510              | 105                   | 067             | 061                | 7    | 11                    |                      |        |       |               |                   |                       |                                 |                      |     |     |     |                      |                |            |                           |

| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C | S ‰   | SIGMA-T | SPECIFIC VOLUME<br>AND MALT-210 <sup>2</sup> | Σ Δ D<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>2</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH | 3<br>C |
|----------------------------|-------------|--------------|-----------|------|-------|---------|--|---------------------------------------|-------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----|--------|
|                            |             | STD          | 0000      | 0418 | 3136  | 2490    | 0030612                                      | 0000                                  | 14627             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 087                        |             | OBS          | 0000      | 0418 | 31359 | 2490    |  |                                       | 14627             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0010      | 0529 | 3175  | 2510    | 0028753                                      | 0030                                  | 14680             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 087                        |             | OBS          | 0010      | 0529 | 31754 | 2510    |  |                                       | 14680             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 087                        |             | OBS          | 0019      | 0528 | 31992 | 2529    |  |                                       | 14685             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0020      | 0511 | 3207  | 2537    | 0026197                                      | 0057                                  | 14679             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 087                        |             | OBS          | 0028      | 0413 | 32637 | 2592    |  |                                       | 14647             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0030      | 0417 | 3274  | 2600    | 0020214                                      | 0080                                  | 14650             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 087                        |             | OBS          | 0047      | 0420 | 33488 | 2659    |  |                                       | 14664             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0050      | 0401 | 3352  | 2663    | 0014204                                      | 0115                                  | 14657             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0075      | 0257 | 3378  | 2697    | 0010974                                      | 0146                                  | 14603             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 087                        |             | OBS          | 0095      | 0164 | 3235P | 2590P   |  |                                       |                   |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0100      | 0134 | 3399  | 2723    | 0008478                                      | 0171                                  | 14556             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0125      | 0037 | 3415  | 2742    | 0006667                                      | 0189                                  | 14519             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 087                        |             | OBS          | 0142      | 0019 | 34234 | 2750    |  |                                       | 14514             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0150      | 0050 | 3425  | 2749    | 0005981                                      | 0205                                  | 14530             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 087                        |             | OBS          | T0190     | 0180 | 34334 | 2748    |  |                                       | 14596             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0200      | 0198 | 3438  | 2750    | 0006027                                      | 0235                                  | 14606             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0250      | 0276 | 3459  | 2760    | 0005131                                      | 0263                                  | 14651             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 087                        |             | OBS          | 0294      | 0324 | 34730 | 2767    |  |                                       | 14681             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0300      | 0328 | 3475  | 2768    | 0004453                                      | 0287                                  | 14684             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 087                        |             | OBS          | T0396     | 0366 | 34918 | 2778    |  |                                       | 14718             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0400      | 0366 | 3492  | 2778    | 0003653                                      | 0328                                  | 14719             |                     |                                 |                      |                                 |                                 |                                   |    |        |
|                            |             | STD          | 0500      | 0360 | 3493  | 2780    | 0003573                                      | 0364                                  | 14733             |                     |                                 |                      |                                 |                                 |                                   |    |        |
| 087                        |             | OBS          | T0507     | 0360 | 34935 | 2780    |  |                                       | 14735             |                     |                                 |                      |                                 |                                 |                                   |    |        |

| WELLSITE<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C  | S %   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-10 <sup>3</sup> | $\frac{\Delta \rho}{\rho}$<br>D.W. AL.<br>X 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>µg - 0.1/l | TOTAL-P<br>µg - 0.1/l | NO <sub>3</sub> -N<br>µg - 0.1/l | NO <sub>2</sub> -N<br>µg - 0.1/l | Si O <sub>4</sub> -Si<br>µg - 0.1/l | pH | T<br>°C |
|---------------------|-------------|--------------|-----------|-------|-------|---------|--|---|-------------------|---------------------|----------------------------------|-----------------------|----------------------------------|----------------------------------|-------------------------------------|----|---------|
|                     |             | STD          | 0000      | 0335  | 3148  | 2507    | 0028968                                    | 0000  | 14593             |                     |                                  |                       |                                  |                                  |                                     |    |         |
| 104                 |             | OBS          | 0000      | 0335  | 31480 | 2507    |  |   | 14593             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0010      | 0283  | 3183  | 2539    | 0025919                                    | 0027  | 14577             |                     |                                  |                       |                                  |                                  |                                     |    |         |
| 104                 |             | OBS          | 0010      | 0283  | 31828 | 2539    |  |   | 14577             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0020      | -0096 | 3290  | 2647    | 0015642                                    | 0048  | 14423             |                     |                                  |                       |                                  |                                  |                                     |    |         |
| 104                 |             | OBS          | 0020      | -0096 | 32902 | 2647    |  |   | 14423             |                     |                                  |                       |                                  |                                  |                                     |    |         |
| 104                 |             | OBS          | 0029      | -0142 | 33091 | 2664    |  |   | 14405             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0030      | -0142 | 3310  | 2665    | 0013985                                    | 0063  | 14406             |                     |                                  |                       |                                  |                                  |                                     |    |         |
| 104                 |             | OBS          | 0049      | -0133 | 33326 | 2683    |  |   | 14416             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0050      | -0133 | 3333  | 2683    | 0012231                                    | 0089  | 14416             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0075      | -0121 | 3348  | 2695    | 0011101                                    | 0118  | 14428             |                     |                                  |                       |                                  |                                  |                                     |    |         |
| 104                 |             | OBS          | 0098      | -0111 | 33644 | 2708    |  |   | 14439             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0100      | -0101 | 3367  | 2710    | 0009701                                    | 0144  | 14444             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0125      | 0003  | 3393  | 2726    | 0008159                                    | 0167  | 14500             |                     |                                  |                       |                                  |                                  |                                     |    |         |
| 104                 |             | OBS          | 0147      | 0073  | 34116 | 2737    |  |   | 14538             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0150      | 0078  | 3413  | 2738    | 0007061                                    | 0186  | 14541             |                     |                                  |                       |                                  |                                  |                                     |    |         |
| 104                 |             | OBS          | T0197     | 0154  | 34386 | 2754    |  |   | 14586             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0200      | 0159  | 3440  | 2754    | 0005578                                    | 0217  | 14589             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0250      | 0230  | 3459  | 2764    | 0004730                                    | 0243  | 14631             |                     |                                  |                       |                                  |                                  |                                     |    |         |
| 104                 |             | OBS          | 0295      | 0281  | 34732 | 2771    |  |   | 14663             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0300      | 0286  | 3474  | 2771    | 0004128                                    | 0265  | 14666             |                     |                                  |                       |                                  |                                  |                                     |    |         |
| 104                 |             | OBS          | 0394      | 0347  | 34918 | 2780    |  |   | 14710             |                     |                                  |                       |                                  |                                  |                                     |    |         |
|                     |             | STD          | 0400      | 0349  | 3493  | 2780    | 0003397                                    | 0303  | 14712             |                     |                                  |                       |                                  |                                  |                                     |    |         |
| 104                 |             | OBS          | 0493      | 0363  | 34993 | 2784    |  |   | 14734             |                     |                                  |                       |                                  |                                  |                                     |    |         |

| MESSAGE<br>TIME<br>HR | CAST<br>NO. | CARD<br>TYPE | DEPTH m | T °C  | S %   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY- $\sigma_t$ | $\Sigma \Delta \sigma$<br>DYN. M.<br>$\times 10^3$ | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>$\mu g - ml/l$ | TOTAL-P<br>$\mu g - ml/l$ | NO <sub>3</sub> -N<br>$\mu g - ml/l$ | NO <sub>3</sub> -N<br>$\mu g - ml/l$ | SiO <sub>2</sub> -S<br>$\mu g - ml/l$ | pH | T<br>°C |
|-----------------------|-------------|--------------|---------|-------|-------|---------|--|--|-------------------|---------------------|--------------------------------------|---------------------------|--------------------------------------|--------------------------------------|---------------------------------------|----|---------|
|                       |             | STD          | 0000    | 0327  | 3133  | 2496    | 0030067                                | 0000   | 14588             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | 0000    | 0327  | 31326 | 2496    |  |  | 14588             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0010    | 0317  | 3135  | 2498    | 0029837                                | 0030   | 14586             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | 0010    | 0317  | 31346 | 2498    |  |  | 14586             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0020    | 0249  | 3177  | 2538    | 0026087                                | 0058   | 14563             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | 0020    | 0249  | 31772 | 2538    |  |  | 14563             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0030    | 0236  | 3315  | 2649    | 0015554                                | 0079   | 14578             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | 0034    | 0218  | 33520 | 2680    |  |  | 14576             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0050    | 0004  | 3358  | 2698    | 0010844                                | 0105   | 14483             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | 0058    | -0050 | 33669 | 2708    |  |  | 14461             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | 0061    | -0061 | 33711 | 2712    |  |  | 14457             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | 0071    | -0053 | 33754 | 2715    |  |  | 14463             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0075    | -0035 | 3379  | 2717    | 0009056                                | 0130   | 14472             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | 0079    | -0017 | 33821 | 2718    |  |  | 14482             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0100    | 0043  | 3397  | 2727    | 0008070                                | 0151   | 14515             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0125    | 0106  | 3413  | 2736    | 0007236                                | 0171   | 14550             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0150    | 0160  | 3427  | 2744    | 0006552                                | 0188   | 14580             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | T0158   | 0176  | 34310 | 2746    |  |  | 14589             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0200    | 0234  | 3447  | 2754    | 0005641                                | 0218   | 14623             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0250    | 0292  | 3462  | 2761    | 0005051                                | 0245   | 14659             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | T0252   | 0294  | 34626 | 2761    |  |  | 14660             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0300    | 0340  | 3475  | 2767    | 0004571                                | 0269   | 14689             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | 0326    | 0357  | 34796 | 2769    |  |  | 14701             |                     |                                      |                           |                                      |                                      |                                       |    |         |
|                       |             | STD          | 0400    | 0362  | 3484  | 2772    | 0004229                                | 0313   | 14716             |                     |                                      |                           |                                      |                                      |                                       |    |         |
| 121                   |             | OBS          | T0440   | 0364  | 34858 | 2773    |  |  | 14724             |                     |                                      |                           |                                      |                                      |                                       |    |         |

| REFERENCE                  |             | SHIP<br>CODE | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | W/RSQEN<br>SQUARE     | STATION TIME<br>(GMT) |                                |                     | YEAR                                  | ORIGINATOR'S      |                     | DEPTH<br>TO<br>BOTTOM           | WAVE<br>OBSERVATIONS  |                                 |                                 | WEA-<br>THER<br>CODE              | CLOUD<br>CODES |     | NODC<br>STATION<br>NUMBER |     |
|----------------------------|-------------|--------------|------------------|-------------------|-----------------------|-----------------------|--------------------------------|---------------------|---------------------------------------|-------------------|---------------------|---------------------------------|-----------------------|---------------------------------|---------------------------------|-----------------------------------|----------------|-----|---------------------------|-----|
| CTRY<br>CODE               | IO.<br>NO.  |              |                  |                   |                       | 10"                   | 1"                             | M.O.                |                                       | CRUISE<br>NO.     | STATION<br>NUMBER   |                                 | DIR.                  | HGT                             | PER                             |                                   | SEA            | FTS |                           | AMT |
| 311260                     | EV          | 53104N       | 052248W          | 186               | 32 07 25 136          | 1968                  | 11P                            | 10353               |                                       | 0430              | 04                  | 19                              | 1                     | 3                               |                                 | X1                                | 6              | 6   | 0030                      |     |
|                            |             |              |                  |                   | WAVE<br>COLOR<br>CODE | WIND<br>TRANS.<br>MKT | DIR.                           | WIND<br>SPEED<br>KT | BARO-<br>METER<br>MMHG                | AIR TEMP. °C      |                     | VSL<br>CODE                     | NO.<br>OBS.<br>DEPTHS | SPECIAL<br>OBSERVATIONS         |                                 |                                   |                |     |                           |     |
|                            |             |              |                  |                   |                       |                       |                                |                     | DRY<br>BULB                           | WET<br>BULB       |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             |              |                  |                   |                       | 24                    | S08                            | 112                 | 083                                   | 072               | 8                   | 11                              |                       |                                 |                                 |                                   |                |     |                           |     |
| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m)        | T °C              | S ‰                   | SIGMA-T               | SPECIFIC VOLUME<br>ANOMALY-20° |                     | Σ Δ D<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> (ml) | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l  | NO <sub>2</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH             | CTD |                           |     |
|                            |             | STD          | 0000             | 0582              | 3194                  | 2518                  |                                |                     | 0027945                               | 0000              | 14703               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
| 136                        |             | OBS          | 0000             | 0582              | 31938                 | 2518                  |                                |                     |                                       |                   | 14703               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
| 136                        |             | OBS          | 0009             | 0592              | 32095                 | 2529                  |                                |                     |                                       |                   | 14711               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0010             | 0528              | 3221                  | 2546                  | 0025318                        |                     | 0027                                  | 14686             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
| 136                        |             | OBS          | 0019             | 0154              | 33057                 | 2647                  |                                |                     |                                       |                   | 14539               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0020             | 0153              | 3313                  | 2653                  | 0015114                        |                     | 0047                                  | 14539             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
| 136                        |             | OBS          | 0028             | 0142              | 33583                 | 2690                  |                                |                     |                                       |                   | 14542               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0030             | 0112              | 3360                  | 2694                  | 0011286                        |                     | 0060                                  | 14529             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
| 136                        |             | OBS          | 0047             | -0041             | 33742                 | 2713                  |                                |                     |                                       |                   | 14464               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0050             | -0029             | 3379                  | 2717                  | 0009089                        |                     | 0080                                  | 14471             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
| 136                        |             | OBS          | 0070             | 0045              | 34012                 | 2731                  |                                |                     |                                       |                   | 14511               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0075             | 0061              | 3404                  | 2732                  | 0007640                        |                     | 0101                                  | 14520             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
| 136                        |             | OBS          | 0094             | 0116              | 34142                 | 2737                  |                                |                     |                                       |                   | 14549               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0100             | 0130              | 3418                  | 2739                  | 0007011                        |                     | 0120                                  | 14557             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0125             | 0179              | 3432                  | 2747                  | 0006306                        |                     | 0136                                  | 14585             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
| 136                        |             | OBS          | T0141            | 0201              | 34378                 | 2749                  |                                |                     |                                       |                   | 14598               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0150             | 0205              | 3438                  | 2749                  | 0006061                        |                     | 0152                                  | 14601             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
| 136                        |             | OBS          | T0190            | 0222              | 34417                 | 2751                  |                                |                     |                                       |                   | 14616               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0200             | 0226              | 3442                  | 2751                  | 0005951                        |                     | 0182                                  | 14619             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0250             | 0247              | 3447                  | 2753                  | 0005778                        |                     | 0211                                  | 14637             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
| 136                        |             | OBS          | T0292            | 0270              | 34540                 | 2757                  |                                |                     |                                       |                   | 14655               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0300             | 0275              | 3455                  | 2757                  | 0005454                        |                     | 0239                                  | 14659             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
|                            |             | STD          | 0400             | 0349              | 3481                  | 2770                  | 0004332                        |                     | 0288                                  | 14710             |                     |                                 |                       |                                 |                                 |                                   |                |     |                           |     |
| 136                        |             | OBS          | T0400            | 0349              | 34805                 | 2770                  |                                |                     |                                       |                   | 14710               |                                 |                       |                                 |                                 |                                   |                |     |                           |     |

| REFERENCE                  |             | SHIP<br>CODE | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | W/RSQEN<br>SQUARE | STATION TIME<br>(GMT) |                                |                      | YEAR                                  | ORIGINATOR'S      |                     | DEPTH<br>TO<br>BOTTOM           | WAVE<br>OBSERVATIONS | WEA-<br>THER<br>CODE            | CLOUD<br>CODES                  | NODC<br>STATION<br>NUMBER         |               |                   |
|----------------------------|-------------|--------------|------------------|-------------------|-------------------|-----------------------|--------------------------------|----------------------|---------------------------------------|-------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|---------------|-------------------|
| CTRY<br>CODE               | IO.<br>NO.  |              |                  |                   |                   | 10"                   | 1"                             | MO                   |                                       | DAY               | HR,1/10             |                                 |                      |                                 |                                 |                                   | CRUISE<br>NO. | STATION<br>NUMBER |
| 311260                     | EV          | 53130N       | 052069W          | 186               | 32 07 25 152      | 1968                  | 11P                            | 10354                | 0695                                  | 06                | 19                  | 2 2                             |                      | X1                              | 7 6                             | 0031                              |               |                   |
|                            |             |              |                  |                   | WATER             |                       | WIND                           |                      | BARO-<br>METER                        |                   | AIR TEMP. °C        |                                 | VSL<br>CODE          | NO.<br>OBS.<br>DEPTHS           | SPECIAL<br>OBSERVATIONS         |                                   |               |                   |
|                            |             |              |                  |                   | COLOR<br>CODE     | TRANS.<br>(m)         | DIR.                           | SPEED<br>DI<br>FOKEL | DRY<br>BULB                           | WET<br>BULB       |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             |              |                  |                   |                   |                       | 22                             | S10                  | 122                                   | 078               | 067                 | 7                               | 11                   |                                 |                                 |                                   |               |                   |
| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m)        | T °C              | S ‰               | SIGMA-T               | SPECIFIC VOLUME<br>ANOMALY-20° |                      | Σ Δ D<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>2</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH            |                   |
|                            |             | STD          | 0000             | 0657              | 3234              | 2540                  | 0025824                        |                      | 0000                                  | 14739             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
| 152                        |             | OBS          | 0000             | 0657              | 32339             | 2540                  |                                |                      |                                       | 14739             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0010             | 0568              | 3242              | 2558                  | 0024183                        |                      | 0025                                  | 14705             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
| 152                        |             | OBS          | 0017             | 0386              | 32780             | 2606                  |                                |                      |                                       | 14636             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0020             | 0259              | 3306              | 2640                  | 0016409                        |                      | 0045                                  | 14585             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
| 152                        |             | OBS          | 0023             | 0152              | 33296             | 2666                  |                                |                      |                                       | 14542             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0030             | 0012              | 3343              | 2686                  | 0012031                        |                      | 0060                                  | 14482             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
| 152                        |             | OBS          | 0047             | -0023             | 33777             | 2715                  |                                |                      |                                       | 14473             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0050             | 0046              | 3385              | 2718                  | 0009002                        |                      | 0081                                  | 14506             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
| 152                        |             | OBS          | 0056             | 0133              | 33961             | 2721                  |                                |                      |                                       | 14548             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
| 152                        |             | OBS          | 0070             | 0068              | 33988             | 2727                  |                                |                      |                                       | 14521             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0075             | 0073              | 3401              | 2729                  | 0007938                        |                      | 0102                                  | 14525             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
| 152                        |             | OBS          | 0094             | 0101              | 34097             | 2734                  |                                |                      |                                       | 14542             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0100             | 0124              | 3414              | 2736                  | 0007274                        |                      | 0121                                  | 14554             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0125             | 0206              | 3431              | 2744                  | 0006587                        |                      | 0138                                  | 14596             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0150             | 0264              | 3446              | 2751                  | 0005949                        |                      | 0154                                  | 14628             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
| 152                        |             | OBS          | T0150            | 0264              | 34459             | 2751                  |                                |                      |                                       | 14628             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
| 152                        |             | OBS          | 0187             | 0306              | 34637             | 2761                  |                                |                      |                                       | 14655             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0200             | 0312              | 3466              | 2762                  | 0004900                        |                      | 0181                                  | 14660             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0250             | 0332              | 3473              | 2766                  | 0004602                        |                      | 0205                                  | 14677             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0300             | 0347              | 3479              | 2769                  | 0004341                        |                      | 0227                                  | 14693             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
| 152                        |             | OBS          | T0374            | 0362              | 34849             | 2773                  |                                |                      |                                       | 14712             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0400             | 0362              | 3485              | 2773                  | 0004109                        |                      | 0269                                  | 14716             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
|                            |             | STD          | 0500             | 0359              | 3487              | 2774                  | 0004076                        |                      | 0310                                  | 14732             |                     |                                 |                      |                                 |                                 |                                   |               |                   |
| 152                        |             | OBS          | T0562            | 0358              | 34873             | 2775                  |                                |                      |                                       | 14742             |                     |                                 |                      |                                 |                                 |                                   |               |                   |

| REFERENCE                  |               | SHIP<br>CODE | LATITUDE<br>° 1/10   | LONGITUDE<br>° 1/10 | WATERSIN<br>SQUARE | STATION TIME<br>(GMT) |                               |                                     |                   | YEAR                | ORIGINATOR'S                    |                         | DEPTH<br>TO<br>BOTTOM           | WAVE<br>OBSERVATIONS            |                                  |     |          | WEA-<br>THER<br>CODE | CLOUD<br>CODES | NOOC<br>STATION<br>NUMBER |      |
|----------------------------|---------------|--------------|----------------------|---------------------|--------------------|-----------------------|-------------------------------|-------------------------------------|-------------------|---------------------|---------------------------------|-------------------------|---------------------------------|---------------------------------|----------------------------------|-----|----------|----------------------|----------------|---------------------------|------|
| CHIT<br>NO.                | ID. NO.       |              |                      |                     |                    | 10"                   | 1"                            | MO                                  | DAY               |                     | HEI/10                          | CRUISE<br>NO.           |                                 | STATION<br>NUMBER               | DIR.                             | HGT | PER      |                      |                |                           | SEA  |
| 311260                     | EV            | 53144N       | 051574W              | 186                 | 31                 | 07                    | 25                            | 172                                 | 1968              | JIP                 | 10355                           | 1317                    | 12                              | 20                              | 2                                | 3   |          | X1                   | 7              | 7                         | 0032 |
| WAVE                       |               | WIND         |                      | SARD-<br>METER      |                    | AIR TEMP. °C          |                               | VIL CODE                            |                   | NO. OBS.<br>DEPTH   |                                 | SPECIAL<br>OBSERVATIONS |                                 |                                 |                                  |     |          |                      |                |                           |      |
| COLOR<br>CODE              | TRANSL<br>WAT | DIR.         | SPEED<br>OF<br>FORCE | METER               | (mbal)             | DRY<br>BULB           | WET<br>BULB                   | CODE                                |                   |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            |               |              |                      | 25                  | S08                | 122                   | 083                           | 078                                 | 7                 | 13                  |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| MISSING<br>TIME<br>HR 1/10 | CAST<br>NO.   | CARD<br>TYPE | DEPTH (m)            | T °C                | S ‰                | SIGMA-T               | SPECIFIC VOLUME<br>ANOMALY-20 | Σ Δ D<br>OTN. M.<br>10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>2</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l    | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>2</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -S<br>μg - ml/l | pH  | S<br>CCT |                      |                |                           |      |
|                            |               | STD          | 0000                 | 0571                | 3139               | 2476                  | 0031949                       | 0000                                | 14691             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | 0000         | 0571                 | 31388               | 2476               |                       |                               |                                     | 14691             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0010         | 0321                 | 3294                | 2625               |                       | 0017820                       | 0025                                | 14609             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | 0018         | 0180                 | 33568               | 2686               |                       |                               |                                     | 14557             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0020         | 0154                 | 3360                | 2691               |                       | 0011554                       | 0040                                | 14546             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | 0025         | 0099                 | 33676               | 2700               |                       |                               |                                     | 14524             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0030         | 0062                 | 3371                | 2705               |                       | 0010156                       | 0050                                | 14508             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | 0045         | 0027                 | 33848               | 2718               |                       |                               |                                     | 14497             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0050         | 0058                 | 3391                | 2722               |                       | 0008611                       | 0069                                | 14513             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | 0060         | 0103                 | 34034               | 2729               |                       |                               |                                     | 14536             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | 0065         | 0118                 | 34099               | 2733               |                       |                               |                                     | 14545             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0075         | 0137                 | 3418                | 2738               |                       | 0007052                       | 0089                                | 14556             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0100         | 0184                 | 3437                | 2750               |                       | 0005985                       | 0105                                | 14583             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | 0100         | 0184                 | 34366               | 2750               |                       |                               |                                     | 14583             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0125         | 0234                 | 3448                | 2755               |                       | 0005526                       | 0119                                | 14611             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | 0149         | 0271                 | 34590               | 2761               |                       |                               |                                     | 14633             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0150         | 0272                 | 3459                | 2761               |                       | 0005001                       | 0133                                | 14633             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | T0199        | 0316                 | 34780               | 2772               |                       |                               |                                     | 14663             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0200         | 0316                 | 3478                | 2772               |                       | 0004030                       | 0155                                | 14663             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0250         | 0325                 | 3481                | 2773               |                       | 0003909                       | 0175                                | 14675             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0300         | 0333                 | 3485                | 2775               |                       | 0003791                       | 0194                                | 14688             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0400         | 0350                 | 3491                | 2779               |                       | 0003558                       | 0231                                | 14712             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | T0476        | 0363                 | 34959               | 2781               |                       |                               |                                     | 14731             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0500         | 0363                 | 3496                | 2781               |                       | 0003406                       | 0266                                | 14735             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0600         | 0362                 | 3497                | 2782               |                       | 0003409                       | 0300                                | 14751             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0700         | 0362                 | 3497                | 2782               |                       | 0003496                       | 0334                                | 14768             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | T0760        | 0361                 | 34974               | 2783               |                       |                               |                                     | 14777             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0800         | 0361                 | 3498                | 2783               |                       | 0003493                       | 0369                                | 14784             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 0900         | 0360                 | 3498                | 2783               |                       | 0003567                       | 0405                                | 14800             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | 0954         | 0359                 | 34983               | 2784               |                       |                               |                                     | 14809             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 1000         | 0359                 | 3499                | 2784               |                       | 0003571                       | 0440                                | 14817             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
|                            | STD           | 1100         | 0358                 | 3499                | 2784               |                       | 0003643                       | 0476                                | 14833             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |
| 172                        | OBS           | T1199        | 0358                 | 34996               | 2785               |                       |                               |                                     | 14850             |                     |                                 |                         |                                 |                                 |                                  |     |          |                      |                |                           |      |

| REFERENCE                  |             | SHIP<br>CODE  | LATITUDE<br>" 1/10 | LONGITUDE<br>" 1/10 | DEPT<br>FOOT         | W. RESDEN<br>SQUARE |                                 | STATION TIME<br>(GMT)                 |                   | YEAR                | ORIGINATOR'S                    |                         | DEPTH<br>TO<br>BOTTOM           | MAX.<br>DEPTH<br>OF<br>SAMPLING | WAVE<br>OBSERVATIONS              |    |          | WEA-<br>THER<br>CODE | CLOUD<br>CODES | NOOC<br>STATION<br>NUMBER |      |
|----------------------------|-------------|---------------|--------------------|---------------------|----------------------|---------------------|---------------------------------|---------------------------------------|-------------------|---------------------|---------------------------------|-------------------------|---------------------------------|---------------------------------|-----------------------------------|----|----------|----------------------|----------------|---------------------------|------|
| CITY<br>CODE               | IO.<br>NO.  |               |                    |                     |                      | 10"                 | 1"                              | MO                                    | DAY               |                     | HR. 1/10                        | CRUISE<br>NO.           |                                 |                                 | STATION<br>NUMBER                 | DM | HGT      |                      |                |                           | PER  |
| 311260                     | EV          | 53155N        | 051478W            | 186                 | 31                   | 07                  | 25                              | 188                                   | 1968              | 11P                 | 10356                           | 1737                    | 15                              | 22                              | 2                                 | 3  |          | X1                   | 7              | 7                         | 0033 |
|                            |             | WAVE          |                    | WIND                |                      | BARO-<br>METER      |                                 | AIR TEMP. °C                          |                   | NO. OBS.<br>DEPTHS  |                                 | SPECIAL<br>OBSERVATIONS |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | COLOR<br>CODE | TRANS.<br>UNIT     | DIR.                | SPEED<br>OR<br>FORCE | UNIT                | UNIT                            | DRY<br>BULB                           | WET<br>BULB       | VIS<br>CODE         |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             |               |                    |                     | 26                   | S08                 | 122                             | 083                                   | 078               | 8                   | 14                              |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| MESSAGE<br>TIME<br>HR 1/10 | CARD<br>NO. | CARD<br>TYPE  | DEPTH (m)          | T °C                | S ‰                  | SIGMA-T             | SPECIFIC VOLUME<br>ANOMALY-218° | Σ Δ O<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - dl/l | TOTAL-P<br>μg - dl/l    | NO <sub>2</sub> -N<br>μg - dl/l | NO <sub>3</sub> -N<br>μg - dl/l | SIO <sub>4</sub> -Si<br>μg - dl/l | PH | S<br>CTD |                      |                |                           |      |
|                            |             | STD           | 0000               | 0598                | 3150                 | 2481                | 0031441                         | 0000                                  | 14704             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | 0000               | 0598                | 31496                | 2481                |                                 |                                       | 14704             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0010               | 0526                | 3191                 | 2522                | 0027557                         | 0029                                  | 14681             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | 0015               | 0430                | 32116                | 2549                |                                 |                                       | 14645             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0020               | 0294                | 3360                 | 2680                | 0012618                         | 0050                                  | 14608             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | 0020               | 0294                | 33599                | 2680                |                                 |                                       | 14608             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0030               | 0253                | 3399                 | 2714                | 0009370                         | 0061                                  | 14597             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | 0030               | 0253                | 33985                | 2714                |                                 |                                       | 14597             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | 0040               | 0295                | 34202                | 2728                |                                 |                                       | 14620             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0050               | 0140                | 3417                 | 2737                | 0007157                         | 0077                                  | 14553             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | 0050               | 0140                | 34168                | 2737                |                                 |                                       | 14553             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0075               | 0189                | 3431                 | 2745                | 0006474                         | 0094                                  | 14581             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | 0075               | 0189                | 34305                | 2745                |                                 |                                       | 14581             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0100               | 0257                | 3447                 | 2752                | 0005808                         | 0110                                  | 14617             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | 0100               | 0257                | 34466                | 2752                |                                 |                                       | 14617             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0125               | 0284                | 3456                 | 2757                | 0005346                         | 0123                                  | 14634             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0150               | 0308                | 3464                 | 2761                | 0004976                         | 0136                                  | 14649             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0200               | 0345                | 3477                 | 2768                | 0004388                         | 0160                                  | 14675             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | T0201              | 0346                | 34775                | 2768                |                                 |                                       | 14676             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0250               | 0350                | 3481                 | 2771                | 0004179                         | 0181                                  | 14686             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0300               | 0354                | 3483                 | 2772                | 0004115                         | 0202                                  | 14696             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0400               | 0363                | 3487                 | 2774                | 0003988                         | 0242                                  | 14717             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | T0402              | 0363                | 34871                | 2774                |                                 |                                       | 14718             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0500               | 0362                | 3487                 | 2775                | 0004045                         | 0283                                  | 14733             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | T0597              | 0361                | 34874                | 2775                |                                 |                                       | 14749             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0600               | 0361                | 3487                 | 2775                | 0004113                         | 0323                                  | 14750             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0700               | 0359                | 3487                 | 2775                | 0004184                         | 0365                                  | 14765             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | T0796              | 0356                | 34872                | 2775                |                                 |                                       | 14780             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0800               | 0356                | 3487                 | 2775                | 0004242                         | 0407                                  | 14781             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 0900               | 0351                | 3487                 | 2775                | 0004298                         | 0450                                  | 14795             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 1000               | 0348                | 3487                 | 2775                | 0004367                         | 0493                                  | 14811             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | T1051              | 0347                | 34863                | 2775                |                                 |                                       | 14819             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 1100               | 0348                | 3487                 | 2776                | 0004404                         | 0537                                  | 14827             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 1200               | 0349                | 3488                 | 2777                | 0004400                         | 0581                                  | 14844             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 1300               | 0350                | 3490                 | 2778                | 0004398                         | 0625                                  | 14862             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 1400               | 0351                | 3491                 | 2779                | 0004387                         | 0669                                  | 14879             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
|                            |             | STD           | 1500               | 0352                | 3492                 | 2780                | 0004383                         | 0713                                  | 14897             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |
| 188                        |             | OBS           | T1536              | 0352                | 34928                | 2780                |                                 |                                       | 14903             |                     |                                 |                         |                                 |                                 |                                   |    |          |                      |                |                           |      |



| REFERENCE                  |             | SHIP<br>CODE  | LATITUDE<br>° 1/10 | LONGITUDE<br>° 1/10 | WATERSIDE<br>SQUARE  | STATION TIME<br>(GMT) |                                  |                                       | YEAR              | ORIGINATOR'S        |                                 | DEPTH<br>TO<br>BOTTOM | MAR.<br>DEPTH<br>OF<br>SAMPLE'S | WAVE<br>OBSERVATIONS            |                                   |      | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NODC<br>STATION<br>NUMBER |     |      |     |
|----------------------------|-------------|---------------|--------------------|---------------------|----------------------|-----------------------|----------------------------------|---------------------------------------|-------------------|---------------------|---------------------------------|-----------------------|---------------------------------|---------------------------------|-----------------------------------|------|----------------------|----------------|-----|---------------------------|-----|------|-----|
| CTRY<br>CODE               | ID.<br>NO.  |               |                    |                     |                      | 10'                   | 1'                               | MO                                    |                   | DAY                 | HR.1/10                         |                       |                                 | CRUISE<br>NO.                   | STATION<br>NUMBER                 | DIR. |                      | NG             | PER |                           | SIA | TYPE | AMT |
| 311260                     | EV          |               | 53190N             | 05126 W             | 186                  | 31                    | 07                               | 25                                    | 211               | 1968                | 11P                             | 10357                 | 2487                            | 16                              | 26                                | 2    | 2                    |                | X1  | 6                         | 3   | 0034 |     |
|                            |             | WATER         |                    | WIND                |                      | BARO-<br>METER        |                                  | AIR TEMP. °C                          |                   | VIL                 |                                 | ND. OBS.<br>DEPTHS    |                                 | SPECIAL<br>OBSERVATIONS         |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | COLOR<br>CODE | TEMP.<br>(°C)      | DIR.                | SPEED<br>OR<br>FORCE | DRY<br>BULB           | WET<br>BULB                      | CODE                                  | NO.               |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             |               |                    |                     |                      | 23                    | S10                              | 125                                   | 089               | 078                 | 8                               | 14                    |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| MESSAGE<br>TIME<br>HR 1/10 | CARD<br>NO. | CARD<br>TYPE  | DEPTH (m)          | T °C                | S ‰                  | SIGMA-T               | SPECIFIC VOLUME<br>AND SALTY-187 | Σ Δ D<br>DTN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>2</sub> -P<br>pg - ml/l | TOTAL-P<br>pg - ml/l  | NO <sub>3</sub> -N<br>pg - ml/l | NO <sub>3</sub> -N<br>pg - ml/l | SIO <sub>4</sub> -Si<br>pg - ml/l | pH   | S<br>C               |                |     |                           |     |      |     |
|                            |             | STD           | 0000               | 0752                | 3369                 | 2634                  | 0016932                          | 0000                                  | 14794             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | 0000               | 0752                | 33694                | 2634                  |                                  |                                       | 14794             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0010               | 0729                | 3394                 | 2657                  | 0014806                          | 0016                                  | 14790             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | 0015               | 0669                | 34021                | 2671                  |                                  |                                       | 14768             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0020               | 0537                | 3403                 | 2689                  | 0011755                          | 0029                                  | 14716             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0030               | 0299                | 3406                 | 2716                  | 0009209                          | 0040                                  | 14618             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | 0030               | 0299                | 34057                | 2716                  |                                  |                                       | 14618             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | 0038               | 0134                | 34120                | 2734                  |                                  |                                       | 14548             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0050               | 0211                | 3432                 | 2744                  | 0006517                          | 0055                                  | 14586             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0075               | 0330                | 3464                 | 2759                  | 0005137                          | 0070                                  | 14646             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | 0075               | 0330                | 34638                | 2759                  |                                  |                                       | 14646             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0100               | 0338                | 3470                 | 2763                  | 0004765                          | 0082                                  | 14655             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0125               | 0344                | 3476                 | 2767                  | 0004391                          | 0094                                  | 14662             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0150               | 0350                | 3481                 | 2771                  | 0004109                          | 0104                                  | 14670             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | 0150               | 0350                | 34808                | 2771                  |                                  |                                       | 14670             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0200               | 0355                | 3485                 | 2773                  | 0003887                          | 0124                                  | 14681             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0250               | 0360                | 3487                 | 2774                  | 0003832                          | 0144                                  | 14691             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0300               | 0366                | 3487                 | 2774                  | 0003929                          | 0163                                  | 14702             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | T0304              | 0366                | 34873                | 2774                  |                                  |                                       | 14703             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | T0312              | 0365                | 34872                | 2774                  |                                  |                                       | 14704             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0400               | 0358                | 3487                 | 2775                  | 0003941                          | 0202                                  | 14715             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | T0402              | 0358                | 34869                | 2775                  |                                  |                                       | 14715             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0500               | 0359                | 3487                 | 2775                  | 0004030                          | 0242                                  | 14732             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | T0597              | 0359                | 34877                | 2775                  |                                  |                                       | 14748             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0600               | 0359                | 3488                 | 2775                  | 0004068                          | 0283                                  | 14749             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0700               | 0357                | 3488                 | 2775                  | 0004121                          | 0324                                  | 14764             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0800               | 0355                | 3488                 | 2776                  | 0004173                          | 0365                                  | 14780             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 0900               | 0352                | 3488                 | 2776                  | 0004223                          | 0407                                  | 14796             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 1000               | 0350                | 3488                 | 2776                  | 0004272                          | 0450                                  | 14812             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | T1000              | 0350                | 34881                | 2776                  |                                  |                                       | 14812             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 1100               | 0358                | 3490                 | 2777                  | 0004311                          | 0493                                  | 14832             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 1200               | 0367                | 3492                 | 2778                  | 0004353                          | 0536                                  | 14853             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | T1206              | 0367                | 34920                | 2778                  |                                  |                                       | 14854             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 1300               | 0362                | 3492                 | 2778                  | 0004408                          | 0580                                  | 14868             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 1400               | 0358                | 3491                 | 2778                  | 0004459                          | 0624                                  | 14882             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
|                            |             | STD           | 1500               | 0353                | 3491                 | 2778                  | 0004513                          | 0669                                  | 14897             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | 1574               | 0349                | 34904                | 2778                  |                                  |                                       | 14908             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |
| 211                        |             | OBS           | T1576              | 0351                | 34934                | 2781                  |                                  |                                       | 14910             |                     |                                 |                       |                                 |                                 |                                   |      |                      |                |     |                           |     |      |     |

| REFERENCE<br>CTRY<br>CODE  | SHIP<br>NO. | LATITUDE<br>° 1/10 | LONGITUDE<br>° 1/10 | DATE<br>MO/DA/YR | STATION TIME<br>(GMT) |              | YEAR | ORIGINATOR'S                   |                        | DEPTH<br>TO BOTTOM                   | WAVE<br>DEPTH<br>OF<br>SAMPLING | WAVE<br>OBSERVATIONS |                                 |                      | WEA-<br>THER<br>CODE            | CLOUD<br>CODES                  |                                   | HODC<br>STATION<br>NUMBER |         |     |     |
|----------------------------|-------------|--------------------|---------------------|------------------|-----------------------|--------------|------|--------------------------------|------------------------|--------------------------------------|---------------------------------|----------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|---------------------------|---------|-----|-----|
|                            |             |                    |                     |                  | 10'                   | 1"           |      | MO                             | DA                     |                                      |                                 | HR                   | 1/10                            | CRUISE<br>NO.        |                                 | STATION<br>NUMBER               | DIR                               |                           | HGT     | PER | SEA |
| 311260                     | EV          | 52451N             | 051096W             | 186              | 21                    | 07 26        | 012  | 1968                           | 11P                    | 10358                                | 2085                            | 15                   | 22                              | 1                    | 2                               | X1                              | 6                                 | 6                         | 0035    |     |     |
|                            |             |                    |                     |                  | WATER                 |              | WIND |                                | BARO-<br>METER<br>(mb) |                                      | AIR TEMP. °C                    |                      | VIL<br>CODE                     |                      | NO.<br>OBS.<br>DEPTHS           |                                 | SPECIAL<br>OBSERVATIONS           |                           |         |     |     |
|                            |             |                    |                     |                  | COLOR<br>CODE         | TRANL<br>(m) | DIR  | SPEED<br>OF<br>FORCE           | DRY<br>BULB            | WET<br>BULB                          |                                 |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             |                    |                     |                  |                       |              | 24   | S11                            | 139                    | 072                                  | 067                             | 8                    | 13                              |                      |                                 |                                 |                                   |                           |         |     |     |
| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE       | DEPTH (m)           | T °C             | S ‰                   | SIGMA-T      |      | SPECIFIC VOLUME<br>ANOMALY-35° |                        | Σ Δ D<br>DYN. M<br>X 10 <sup>3</sup> | SOUND<br>VELOCITY               | O <sub>2</sub> ml/l  | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -H<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | PH                        | S<br>CL |     |     |
|                            |             | STO                | 0000                | 0777             | 3396                  | 2651         |      | 0015316                        |                        | 0000                                 | 14807                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | 0000                | 0777             | 33957                 | 2651         |      |                                |                        |                                      | 14807                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0010                | 0738             | 3406                  | 2665         |      | 0014033                        |                        | 0015                                 | 14795                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | 0015                | 0719             | 34105                 | 2671         |      |                                |                        |                                      | 14789                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0020                | 0704             | 3413                  | 2675         |      | 0013074                        |                        | 0028                                 | 14784                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | 0024                | 0685             | 34160                 | 2680         |      |                                |                        |                                      | 14778                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0030                | 0606             | 3427                  | 2699         |      | 0010804                        |                        | 0040                                 | 14749                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | 0048                | 0429             | 34533                 | 2741         |      |                                |                        |                                      | 14682                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0050                | 0414             | 3456                  | 2744         |      | 0006514                        |                        | 0057                                 | 14677                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | 0058                | 0371             | 34630                 | 2754         |      |                                |                        |                                      | 14661                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | 0073                | 0366             | 34708                 | 2761         |      |                                |                        |                                      | 14662                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0075                | 0365             | 3471                  | 2761         |      | 0004925                        |                        | 0072                                 | 14662                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | 0097                | 0356             | 34778                 | 2768         |      |                                |                        |                                      | 14663                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0100                | 0356             | 3478                  | 2768         |      | 0004335                        |                        | 0083                                 | 14664                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0125                | 0357             | 3480                  | 2769         |      | 0004217                        |                        | 0094                                 | 14668                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0150                | 0358             | 3482                  | 2771         |      | 0004098                        |                        | 0104                                 | 14673                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | 0193                | 0360             | 34853                 | 2773         |      |                                |                        |                                      | 14682                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0200                | 0360             | 3485                  | 2773         |      | 0003904                        |                        | 0124                                 | 14683                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0250                | 0359             | 3486                  | 2774         |      | 0003901                        |                        | 0144                                 | 14691                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0300                | 0359             | 3486                  | 2774         |      | 0003907                        |                        | 0163                                 | 14699                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | T0389               | 0358             | 34874                 | 2775         |      |                                |                        |                                      | 14713                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0400                | 0358             | 3487                  | 2775         |      | 0003939                        |                        | 0203                                 | 14715                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0500                | 0357             | 3487                  | 2775         |      | 0004014                        |                        | 0242                                 | 14731                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0600                | 0357             | 3487                  | 2775         |      | 0004099                        |                        | 0283                                 | 14748                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | 0683                | 0356             | 34869                 | 2775         |      |                                |                        |                                      | 14761                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0700                | 0356             | 3487                  | 2775         |      | 0004180                        |                        | 0324                                 | 14764                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | T0780               | 0355             | 34869                 | 2775         |      |                                |                        |                                      | 14777                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0800                | 0356             | 3487                  | 2775         |      | 0004252                        |                        | 0367                                 | 14780                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 0900                | 0358             | 3487                  | 2775         |      | 0004368                        |                        | 0410                                 | 14798                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 1000                | 0361             | 3488                  | 2775         |      | 0004410                        |                        | 0454                                 | 14816                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | T1029               | 0362             | 34881                 | 2775         |      |                                |                        |                                      | 14822                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 1100                | 0362             | 3489                  | 2776         |      | 0004429                        |                        | 0498                                 | 14834                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 1200                | 0361             | 3489                  | 2776         |      | 0004500                        |                        | 0542                                 | 14850                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 1300                | 0358             | 3490                  | 2777         |      | 0004472                        |                        | 0587                                 | 14866                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 1400                | 0354             | 3492                  | 2779         |      | 0004356                        |                        | 0631                                 | 14881                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
|                            |             | STO                | 1500                | 0348             | 3493                  | 2780         |      | 0004286                        |                        | 0675                                 | 14895                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |
| 012                        |             | OBS                | T1529               | 0346             | 34932                 | 2781         |      |                                |                        |                                      | 14899                           |                      |                                 |                      |                                 |                                 |                                   |                           |         |     |     |



| REFERENCE |    | SHIP<br>CODE | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | MOON<br>PHASE | P/250IN<br>SQUARE |     | STATION TIME<br>(GMT) |         | YEAR | ORIGINATOR'S  |                   | DEPTH<br>TO<br>BOTTOM | MAL.<br>DEPTH<br>OF<br>SAMPLE'S | WAVE<br>OBSERVATIONS |      |      |      | WEA-<br>THER<br>CODE | CLOUD<br>CODES |      | NOOC<br>STATION<br>NUMBER |      |
|-----------|----|--------------|------------------|-------------------|---------------|-------------------|-----|-----------------------|---------|------|---------------|-------------------|-----------------------|---------------------------------|----------------------|------|------|------|----------------------|----------------|------|---------------------------|------|
|           |    |              |                  |                   |               | 10"               | 1"  | DAY                   | HR.1/10 |      | CRUISE<br>NO. | STATION<br>NUMBER |                       |                                 | DR                   | HGT  | PER  | SEA  |                      | TYPE           | AMT  |                           |      |
| 311260    | EV |              | 52417N           | 05120 W           |               | 186               | 21  | 07                    | 26      | 030  | 1968          | 11P               | 10359                 | 1591                            | 15                   | 26   | 2    | 2    |                      | X1             | 6    | 5                         | 0036 |
|           |    | WATER        |                  | WIND              |               | BARO-             |     | AIR TEMP °C           |         | VIL  |               | NO. OBS.          |                       | SPECIAL                         |                      |      |      |      |                      |                |      |                           |      |
|           |    | COLOR        | TRANS.           | DIR.              | SPEED         | METER             | QTY | WET                   | BULB    | BULB | CODE          | DEPTH             | OBS.                  | OBSERVATIONS                    | OBS.                 | OBS. | OBS. | OBS. | OBS.                 | OBS.           | OBS. | OBS.                      | OBS. |
|           |    |              |                  |                   | 23            | S10               | 135 | 094                   | 083     | 8    | 13            |                   |                       |                                 |                      |      |      |      |                      |                |      |                           |      |

| MESSAGE<br>TIME<br>HR 1 10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C | S %   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> | Σ Δ D<br>OTN, M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>2</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SIO <sub>4</sub> -S<br>μg - ml/l | pH | CO <sub>2</sub> |
|----------------------------|-------------|--------------|-----------|------|-------|---------|---|---------------------------------------|-------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|----------------------------------|----|-----------------|
|                            |             | STD          | 0000      | 0702 | 3258  | 2554    | 0024569                                   | 0000                                  | 14760             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | OBS          | 0000      | 0702 | 32582 | 2554    |   |                                       | 14760             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | STD          | 0010      | 0577 | 3290  | 2594    | 0020710                                   | 0023                                  | 14715             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | 0010      | 0577 | 32897 | 2594    |   |                                       | 14715             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | 0018      | 0677 | 33944 | 2664    |   |                                       | 14771             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0020      | 0674 | 3397  | 2666    | 0013883                                   | 0040                                  | 14770             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | 0025      | 0668 | 34038 | 2673    |   |                                       | 14769             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0030      | 0550 | 3414  | 2696    | 0011114                                   | 0052                                  | 14724             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | 0049      | 0275 | 34435 | 2748    |   |                                       | 14616             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0050      | 0279 | 3445  | 2749    | 0006084                                   | 0070                                  | 14618             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0075      | 0350 | 3467  | 2760    | 0005083                                   | 0084                                  | 14655             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | 0076      | 0351 | 34672 | 2760    |   |                                       | 14656             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | 0098      | 0348 | 34739 | 2765    |   |                                       | 14659             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0100      | 0348 | 3474  | 2765    | 0004561                                   | 0096                                  | 14660             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0125      | 0352 | 3479  | 2769    | 0004238                                   | 0107                                  | 14666             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0150      | 0355 | 3483  | 2772    | 0003992                                   | 0117                                  | 14672             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | 0195      | 0361 | 34878 | 2775    |   |                                       | 14683             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0200      | 0361 | 3488  | 2775    | 0003734                                   | 0136                                  | 14683             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0250      | 0360 | 3488  | 2775    | 0003783                                   | 0155                                  | 14691             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0300      | 0360 | 3488  | 2775    | 0003835                                   | 0174                                  | 14699             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | 0389      | 0359 | 34872 | 2775    |   |                                       | 14714             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0400      | 0359 | 3487  | 2775    | 0003934                                   | 0213                                  | 14716             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0500      | 0358 | 3488  | 2775    | 0003992                                   | 0253                                  | 14732             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | 0583      | 0358 | 34878 | 2775    |   |                                       | 14746             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0600      | 0358 | 3488  | 2775    | 0004058                                   | 0293                                  | 14748             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0700      | 0358 | 3487  | 2775    | 0004195                                   | 0334                                  | 14765             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | T0779     | 0358 | 34865 | 2774    |   |                                       | 14778             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0800      | 0357 | 3487  | 2775    | 0004295                                   | 0377                                  | 14781             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 0900      | 0355 | 3488  | 2776    | 0004272                                   | 0419                                  | 14797             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 1000      | 0352 | 3489  | 2777    | 0004247                                   | 0462                                  | 14812             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | T1026     | 0351 | 34890 | 2777    |   |                                       | 14816             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 1100      | 0352 | 3489  | 2777    | 0004317                                   | 0505                                  | 14829             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 1200      | 0353 | 3489  | 2777    | 0004430                                   | 0549                                  | 14847             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 1300      | 0355 | 3489  | 2776    | 0004535                                   | 0593                                  | 14864             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 1400      | 0356 | 3488  | 2776    | 0004648                                   | 0639                                  | 14881             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
|                            |             | STD          | 1500      | 0358 | 3488  | 2776    | 0004753                                   | 0686                                  | 14899             |                     |                                 |                      |                                 |                                 |                                  |    |                 |
| 030                        |             | OBS          | T1525     | 0358 | 34882 | 2776    |   |                                       | 14903             |                     |                                 |                      |                                 |                                 |                                  |    |                 |

| REFERENCE                  |               | SHIP<br>CODE | LATITUDE<br>1/10     | LONGITUDE<br>1/10 | MOON<br>PHASE | STATION TIME<br>(GMT) |                                | YEAR   | ORIGINATOR'S         |                         | DEPTH<br>TO<br>BOTTOM           | MAX.<br>DEPTH<br>OF<br>SAMPL. | WAVE<br>OBSERVATIONS            |                                 |                                   |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NOOC<br>STATION<br>NUMBER |      |
|----------------------------|---------------|--------------|----------------------|-------------------|---------------|-----------------------|--------------------------------|--|----------------------|-------------------------|---------------------------------|-------------------------------|---------------------------------|---------------------------------|-----------------------------------|-----|----------------------|----------------|-----|---------------------------|------|
| CTRY<br>CODE               | IO<br>NO.     |              |                      |                   |               | 10"                   | 1"                             |  | CRUISE<br>NO.        | STATION<br>NUMBER       |                                 |                               | DIR                             | HGT                             | PER                               | SEA |                      | TYPE           | AMT |                           |      |
| 311260                     | EV            |              | 52399N               | 051269W           | 186           | 21                    | 07                             | 26   | 057                  | 1968                    | 11P                             | 10360                         | 1298                            | 12                              | 22                                | 213 |                      | X1             | 3   | 7                         | 0037 |
| WATER                      |               | WIND         |                      | BARO-<br>METER    |               | AIR TEMP. °C          |                                | VIL<br>CODE  | NO.<br>OBS.<br>DEPTH | SPECIAL<br>OBSERVATIONS |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| COLOR<br>CODE              | TRANS<br>UNIT | DIR          | SPEED<br>OF<br>FORCE | UNIT              | DRY<br>BULB   | WET<br>BULB           |                                |  |                      |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               |              | 24                   | 508               | 125           | 083                   | 072                            | 7  | 13                   |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| MISSION<br>TIME<br>HR 1/10 | CAST<br>NO.   | CARD<br>TYPE | DEPTH (m)            | T °C              | S ‰           | SIGMA-T               | SPECIFIC VOLUME<br>ANOMALY-20P | $\Sigma \Delta \sigma$<br>DTM. M.<br>E 10 <sup>3</sup> | SOUND<br>VELOCITY    | O <sub>2</sub> ml/l     | PO <sub>4</sub> -P<br>µg - µl/l | TOTAL-P<br>µg - µl/l          | NO <sub>3</sub> -N<br>µg - µl/l | NO <sub>3</sub> -N<br>µg - µl/l | SiO <sub>4</sub> -Si<br>µg - µl/l | pH  | 1<br>C<br>C          |                |     |                           |      |
|                            |               | STD          | 0000                 | 0659              | 3236          | 2541                  | 0025729                        | 0000   | 14740                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | 0000                 | 0659              | 32355         | 2541                  |                                |  | 14740                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0010                 | 0592              | 3280          | 2585                  | 0021640                        | 0024   | 14720                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | OBS          | 0010                 | 0592              | 32796         | 2585                  |                                |  | 14720                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | 0019                 | 0632              | 34021         | 2676                  |                                |  | 14754                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0020                 | 0618              | 3402          | 2678                  | 0012805                        | 0041   | 14748                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | 0026                 | 0502              | 33998         | 2690                  |                                |  | 14702                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0030                 | 0356              | 3398          | 2704                  | 0010298                        | 0052   | 14641                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | 0038                 | 0112              | 33952         | 2722                  |                                |  | 14535                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0050                 | 0194              | 3414          | 2731                  | 0007751                        | 0071   | 14576                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0075                 | 0294              | 3443          | 2746                  | 0006381                        | 0088   | 14628                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | 0096                 | 0303              | 34534         | 2753                  |                                |  | 14637                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0100                 | 0294              | 3454          | 2755                  | 0005568                        | 0103   | 14634                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | 0106                 | 0283              | 34545         | 2756                  |                                |  | 14630                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0125                 | 0302              | 3462          | 2760                  | 0005054                        | 0116   | 14642                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0150                 | 0324              | 3470          | 2765                  | 0004673                        | 0129   | 14657                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | 0193                 | 0353              | 34810         | 2770                  |                                |  | 14678                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0200                 | 0353              | 3481          | 2771                  | 0004145                        | 0151   | 14679                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0250                 | 0355              | 3483          | 2772                  | 0004069                        | 0171   | 14688                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0300                 | 0356              | 3485          | 2773                  | 0003992                        | 0191   | 14698                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | T0387                | 0359              | 34880         | 2775                  |                                |  | 14713                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0400                 | 0359              | 3488          | 2776                  | 0003867                        | 0231   | 14716                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0500                 | 0359              | 3489          | 2776                  | 0003916                        | 0269   | 14732                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | 0582                 | 0358              | 34891         | 2776                  |                                |  | 14746                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0600                 | 0358              | 3489          | 2776                  | 0003954                        | 0309   | 14748                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0700                 | 0356              | 3489          | 2777                  | 0003995                        | 0349   | 14764                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | T0782                | 0355              | 34896         | 2777                  |                                |  | 14778                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0800                 | 0355              | 3490          | 2777                  | 0004023                        | 0389   | 14781                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 0900                 | 0355              | 3490          | 2777                  | 0004106                        | 0429   | 14797                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | 0971                 | 0355              | 34901         | 2777                  |                                |  | 14809                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 1000                 | 0356              | 3490          | 2777                  | 0004194                        | 0471   | 14814                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
|                            |               | STD          | 1100                 | 0359              | 3490          | 2777                  | 0004305                        | 0513   | 14832                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |
| 057                        |               | OBS          | T1166                | 0362              | 34902         | 2777                  |                                |  | 14845                |                         |                                 |                               |                                 |                                 |                                   |     |                      |                |     |                           |      |

| REFERENCE                  |                | SHIP<br>CODE | LATITUDE<br>1/10     | LONGITUDE<br>1/10 | WRS<br>SQUAD | STATION TIME<br>(GMT) |                                |                                      | YEAR              | ORIGINATOR'S        |                                 | DEPTH<br>TO<br>BOTTOM   | MAX.<br>DEPTH<br>OF<br>SAMPLES  | WAVE<br>OBSERVATIONS            |                                   |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES | TYPE<br>(AMT) | NOOC<br>STATION<br>NUMBER |     |     |               |
|----------------------------|----------------|--------------|----------------------|-------------------|--------------|-----------------------|--------------------------------|--------------------------------------|-------------------|---------------------|---------------------------------|-------------------------|---------------------------------|---------------------------------|-----------------------------------|-----|----------------------|----------------|---------------|---------------------------|-----|-----|---------------|
| CRUISE<br>NO.              | ID.<br>NO.     |              |                      |                   |              | 10°                   | 1°                             | M/O<br>DAY                           |                   | HR./10              | CRUISE<br>NO.                   |                         |                                 | STATION<br>NUMBER               | DR                                | HGT |                      |                |               |                           | PER | SEA | TYPE<br>(AMT) |
| 311260                     | EV             |              | 52375N               | 051328W           | 186          | 21                    | 07                             | 26                                   | 075               | 1968                | 11P                             | 10361                   | 0923                            | 08                              | 29                                | 2   | 2                    |                | X1            | 8                         | 7   |     | 0038          |
| WAVE                       |                | WIND         |                      | BARO-<br>METER    |              | AIR TEMP. °C          |                                | VIS. CODE                            |                   | NO. OBS. DEPTHS     |                                 | SPECIAL<br>OBSERVATIONS |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| COLOR<br>CODE              | TRANS.<br>UNIT | DIR.         | SPEED<br>OR<br>FORCE | DRY<br>BULB       | WET<br>BULB  | DRY<br>BULB           | WET<br>BULB                    | DRY<br>BULB                          | WET<br>BULB       | DRY<br>BULB         | WET<br>BULB                     | DRY<br>BULB             | WET<br>BULB                     |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                |              |                      | 30                | 508          | 115                   | 086                            | 081                                  | 7                 | 13                  |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| MESSAGE<br>TIME<br>HR 1/10 | CAS<br>NO.     | CARD<br>TYPE | DEPTH (m)            | T °C              | S ‰          | SIGMA-T               | SPECIFIC VOLUME<br>ANOMALY-30° | Σ Δ D<br>DTN. M<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l    | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>2</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH  | S<br>C               |                |               |                           |     |     |               |
|                            |                | STD          | 0000                 | 0695              | 3238         | 2538                  | 0026012                        | 0000                                 | 14754             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | 0000                 | 0695              | 32377        | 2538                  |                                |                                      | 14754             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0010                 | 0618              | 3244         | 2554                  | 0024588                        | 0025                                 | 14726             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | 0010                 | 0618              | 32443        | 2554                  |                                |                                      | 14726             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0020                 | 0169              | 3301         | 2642                  | 0016148                        | 0046                                 | 14545             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | 0020                 | 0169              | 33008        | 2642                  |                                |                                      | 14545             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | 0029                 | 0045              | 33377        | 2680                  |                                |                                      | 14496             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0030                 | 0041              | 3339         | 2681                  | 0012480                        | 0060                                 | 14494             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0050                 | -0043             | 3362         | 2703                  | 0010326                        | 0083                                 | 14462             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | 0058                 | -0077             | 33697        | 2711                  |                                |                                      | 14449             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | 0073                 | -0006             | 33830        | 2719                  |                                |                                      | 14486             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0075                 | 0063              | 3391         | 2721                  | 0008640                        | 0106                                 | 14519             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | 0081                 | 0172              | 34063        | 2726                  |                                |                                      | 14571             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | 0087                 | 0131              | 34076        | 2730                  |                                |                                      | 14554             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0100                 | 0151              | 3417         | 2737                  | 0007231                        | 0126                                 | 14566             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0125                 | 0192              | 3434         | 2747                  | 0006252                        | 0143                                 | 14591             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | T0144                | 0223              | 34451        | 2754                  |                                |                                      | 14609             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0150                 | 0235              | 3448         | 2755                  | 0005547                        | 0158                                 | 14616             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | 0191                 | 0304              | 34662        | 2763                  |                                |                                      | 14655             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0200                 | 0308              | 3467         | 2764                  | 0004787                        | 0184                                 | 14658             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0250                 | 0327              | 3474         | 2767                  | 0004479                        | 0207                                 | 14675             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0300                 | 0342              | 3479         | 2770                  | 0004291                        | 0229                                 | 14691             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | T0378                | 0358              | 34848        | 2773                  |                                |                                      | 14711             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0400                 | 0358              | 3485         | 2773                  | 0004087                        | 0271                                 | 14715             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0500                 | 0357              | 3486         | 2774                  | 0004093                        | 0312                                 | 14731             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | T0591                | 0357              | 34872        | 2775                  |                                |                                      | 14746             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0600                 | 0357              | 3487         | 2775                  | 0004084                        | 0353                                 | 14748             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0700                 | 0358              | 3488         | 2775                  | 0004145                        | 0394                                 | 14765             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
|                            |                | STD          | 0800                 | 0358              | 3488         | 2775                  | 0004213                        | 0435                                 | 14782             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |
| 075                        |                | OBS          | T0808                | 0358              | 34879        | 2775                  |                                |                                      | 14783             |                     |                                 |                         |                                 |                                 |                                   |     |                      |                |               |                           |     |     |               |

| REFERENCE                  |            | SHIP<br>CODE  | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | WRS<br>SQUAD         | STATION TIME<br>(GMT) |                                |                                       | ORIGINATOR'S      |                         | DEPTH<br>TO<br>BOTTOM           | MAX.<br>DEPTH<br>OF<br>SAMPLES | WAVE<br>OBSERVATIONS            |                                 |                                   | WEA-<br>THER<br>CODE | CLOUD<br>CODES |     | NOOC<br>STATION<br>NUMBER |     |      |     |      |  |
|----------------------------|------------|---------------|------------------|-------------------|----------------------|-----------------------|--------------------------------|---------------------------------------|-------------------|-------------------------|---------------------------------|--------------------------------|---------------------------------|---------------------------------|-----------------------------------|----------------------|----------------|-----|---------------------------|-----|------|-----|------|--|
| CRUISE<br>NO.              | ID.<br>NO. |               |                  |                   |                      | 10°                   | 1°                             | M.O.<br>DAY                           | HR./10            | YEAR                    |                                 |                                | CRUISE<br>NO.                   | STATION<br>NUMBER               | DIR.                              |                      | HGT            | PER |                           | SEA | TYPE | AMT |      |  |
| 311260                     | EV         |               | 5235 N           | 051395W           | 186                  | 21                    | 07                             | 26                                    | 088               | 1968                    | 11P                             | 10362                          | 0439                            | 04                              | 34                                | 2                    | 2              |     | X2                        | 6   | 8    |     | 0039 |  |
|                            |            |               |                  |                   |                      | WAVE                  |                                | WIND                                  |                   | BARO-<br>METER<br>(mbs) | AIR TEMP. °C                    |                                | VIS.<br>CODE                    | NO.<br>OBS.<br>DEPTHS           | SPECIAL<br>OBSERVATIONS           |                      |                |     |                           |     |      |     |      |  |
| COLOR<br>CODE              |            | TRANS.<br>(m) |                  | DIR.              | SPEED<br>OF<br>FORCE |                       | DRY<br>BULB                    | WET<br>BULB                           |                   |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            |               |                  |                   | 30                   |                       | 502                            | 119                                   | 083               | 072                     | 7                               | 11                             |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| MESSAGE<br>TIME<br>HR 1/10 | CAS<br>NO. | CARD<br>TYPE  | DEPTH (m)        | T °C              | S ‰                  | SIGMA-T               | SPECIFIC VOLUME<br>ANOMALY-30° | Σ Δ D<br>DTN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l     | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l           | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>2</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH                   |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0000             | 0655              | 3250                 | 2553                  | 0024633                        | 0000                                  | 14740             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| 088                        |            | OBS           | 0000             | 0655              | 32495                | 2553                  |                                |                                       | 14740             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0010             | 0568              | 3251                 | 2565                  | 0023523                        | 0024                                  | 14706             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| 088                        |            | OBS           | 0010             | 0568              | 32508                | 2565                  |                                |                                       | 14706             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0020             | 0221              | 3285                 | 2626                  | 0017689                        | 0045                                  | 14566             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| 088                        |            | OBS           | 0020             | 0221              | 32853                | 2626                  |                                |                                       | 14566             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0030             | -0023             | 3323                 | 2671                  | 0013414                        | 0060                                  | 14463             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| 088                        |            | OBS           | 0030             | -0023             | 33228                | 2671                  |                                |                                       | 14463             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| 088                        |            | OBS           | 0030             | -0104             | 33488                | 2695                  |                                |                                       | 14429             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0050             | -0101             | 3352                 | 2697                  | 0010905                        | 0085                                  | 14434             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| 088                        |            | OBS           | 0074             | -0097             | 33549                | 2700                  |                                |                                       | 14440             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0075             | -0096             | 3355                 | 2700                  | 0010649                        | 0111                                  | 14441             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| 088                        |            | OBS           | 0099             | -0054             | 33696                | 2710                  |                                |                                       | 14466             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0100             | -0050             | 3371                 | 2711                  | 0009594                        | 0137                                  | 14469             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0125             | 0047              | 3392                 | 2723                  | 0008472                        | 0159                                  | 14520             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| 088                        |            | OBS           | 0148             | 0115              | 34090                | 2733                  |                                |                                       | 14557             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0150             | 0118              | 3410                 | 2733                  | 0007546                        | 0179                                  | 14559             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| 088                        |            | OBS           | T0197            | 0190              | 34327                | 2746                  |                                |                                       | 14601             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0200             | 0196              | 3434                 | 2747                  | 0006314                        | 0214                                  | 14605             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0250             | 0283              | 3457                 | 2758                  | 0005344                        | 0243                                  | 14654             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
|                            |            | STD           | 0300             | 0340              | 3473                 | 2765                  | 0004720                        | 0268                                  | 14689             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| 088                        |            | OBS           | T0300            | 0340              | 34730                | 2765                  |                                |                                       | 14689             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |
| 088                        |            | OBS           | T0399            | 0363              | 34822                | 2770                  |                                |                                       | 14716             |                         |                                 |                                |                                 |                                 |                                   |                      |                |     |                           |     |      |     |      |  |

| REFERENCE   |            | SHIP<br>CODE | LATITUDE<br>° 1/10 | LONGITUDE<br>° 1/10 | WAVE<br>SQUARE | STATION TIME<br>(GMT) |     |        | YEAR | ORIGINATOR'S  |                   | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPLING | WAVE<br>OBSERVATIONS |     |     | WIND<br>CODE | CLOUD<br>CODES |      | NODC<br>STATION<br>NUMBER |      |
|---|------------|--------------|--------------------|---------------------|----------------|-----------------------|-----|--------|------|---------------|-------------------|-----------------------|---------------------------------|----------------------|-----|-----|--------------|----------------|------|---------------------------|------|
| CRUISE<br>CODE  | 10.<br>NO. |              |                    |                     |                | M/D                   | DAY | HR./10 |      | CRUISE<br>NO. | STATION<br>NUMBER |                       |                                 | DIR                  | HGT | PER |              | SEA            | TYPE |                           | AMT  |
| 311260  | EV         | 52300N       | 051518W            | 186                 | 21             | 07                    | 26  | 104    | 1968 | 11P           | 10363             | 0300                  | 03                              | 34                   | 2   | 2   |              | X1             | 6    | 6                         | 0040 |
| <div>WAVE R WIND BARO-METER AIR TEMP. °C</div> <div>COLOR CODE TRANS. DIR. SPEED OR FORCE (mbars) DRY BULB WET BULB VIS. CODE NO. OBS. DEPTHS SPECIAL OBSERVATIONS</div> <div>33 504 119 089 078 7 09</div> |            |              |                    |                     |                |                       |     |        |      |               |                   |                       |                                 |                      |     |     |              |                |      |                           |      |

| MESSAGE<br>TIME<br>HR 1/10 | CARD<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C  | S ‰   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> | Σ Δ σ<br>DYN. M.<br>X 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>2</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SIO <sub>2</sub> -Si<br>μg - ml/l | pH | S<br>CC |
|----------------------------|-------------|--------------|-----------|-------|-------|---------|---|---------------------------------------|-------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----|---------|
|                            |             | STD          | 0000      | 0659  | 3225  | 2533    | 0026551                                   | 0000                                  | 14738             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | OBS          | 0000      | 0659  | 32245 | 2533    |   |                                       | 14738             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 104                        |             | OBS          | 0008      | 0572  | 32346 | 2551    |   |                                       | 14706             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0010      | 0553  | 3236  | 2555    | 0024476                                   | 0026                                  | 14699             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 104                        |             | OBS          | 0017      | 0488  | 32406 | 2566    |   |                                       | 14673             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0020      | 0282  | 3266  | 2606    | 0019618                                   | 0048                                  | 14590             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 104                        |             | OBS          | 0023      | 0115  | 32875 | 2635    |   |                                       | 14519             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0030      | 0014  | 3303  | 2653    | 0015093                                   | 0065                                  | 14477             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 104                        |             | OBS          | 0040      | -0103 | 33226 | 2674    |   |                                       | 14427             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0050      | -0102 | 3330  | 2680    | 0012557                                   | 0093                                  | 14431             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0075      | -0098 | 3347  | 2693    | 0011255                                   | 0122                                  | 14439             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0100      | -0094 | 3363  | 2706    | 0010033                                   | 0149                                  | 14447             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 104                        |             | OBS          | 0105      | -0093 | 33662 | 2709    |   |                                       | 14449             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0125      | -0046 | 3381  | 2719    | 0008840                                   | 0173                                  | 14476             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0150      | 0007  | 3396  | 2728    | 0007947                                   | 0194                                  | 14506             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 104                        |             | OBS          | 0170      | 0044  | 34052 | 2734    |   |                                       | 14528             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 104                        |             | OBS          | T0190     | 0077  | 34116 | 2737    |   |                                       | 14547             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0200      | 0097  | 3416  | 2739    | 0006960                                   | 0231                                  | 14558             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0250      | 0232  | 3449  | 2756    | 0005499                                   | 0262                                  | 14631             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 104                        |             | OBS          | 0280      | 0340  | 34772 | 2769    |   |                                       | 14686             |                     |                                 |                      |                                 |                                 |                                   |    |         |

| REFERENCE<br>STATION<br>CODE | SHIP<br>CODE | LATITUDE<br>° 1/10 | LONGITUDE<br>° 1/10 | WAVE<br>SQUARE | STATION TIME<br>(GMT) |               |      | YEAR                 | ORIGINATOR'S   |        | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPLING | WAVE<br>OBSERVATIONS |                      |                         | WEA-<br>TER<br>CODE | CLOUD<br>CODES |     | NODC<br>STATION<br>NUMBER |     |      |     |
|------------------------------|--------------|--------------------|---------------------|----------------|-----------------------|---------------|------|----------------------|----------------|--------|-----------------------|---------------------------------|----------------------|----------------------|-------------------------|---------------------|----------------|-----|---------------------------|-----|------|-----|
|                              |              |                    |                     |                | 10°                   | 1°            | M/D  |                      | DAY            | HR./10 |                       |                                 | CRUISE<br>NO.        | STATION<br>NUMBER    | DIR                     |                     | HGT            | PER |                           | SEA | TYPE | AMT |
| 311260                       | EV           | 52262N             | 052057W             | 186            | 22                    | 07            | 26   | 120                  | 1968           | 11P    | 10364                 | 0282                            | 03                   | 34                   | 1                       | 2                   |                | X1  | 6                         | 6   | 0041 |     |
|                              |              |                    |                     |                | WAVE                  |               | WIND |                      | BARO-<br>METER |        | AIR TEMP. °C          |                                 |                      |                      |                         |                     |                |     |                           |     |      |     |
|                              |              |                    |                     |                | COLOR<br>CODE         | TRANS.<br>(m) | DIR. | SPEED<br>OF<br>FORCE | (mbars)        |        | DRY<br>BULB           | WET<br>BULB                     | VIS.<br>CODE         | NO.<br>OBS.<br>DEPTH | SPECIAL<br>OBSERVATIONS |                     |                |     |                           |     |      |     |
|                              |              |                    |                     |                |                       |               |      | 33                   | 504            | 119    | 089                   | 083                             | 8                    | 09                   |                         |                     |                |     |                           |     |      |     |

| MESSAGE<br>TIME<br>HR 1/10 | CARD<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C  | S ‰   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> | Σ Δ σ<br>DYN. M.<br>X 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>2</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SIO <sub>2</sub> -Si<br>μg - ml/l | pH | S<br>CC |
|----------------------------|-------------|--------------|-----------|-------|-------|---------|---|---------------------------------------|-------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----|---------|
|                            |             | STD          | 0000      | 0652  | 3250  | 2554    | 0024574                                   | 0000                                  | 14739             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | OBS          | 0000      | 0652  | 32498 | 2554    |   |                                       | 14739             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0010      | 0486  | 3273  | 2592    | 0020967                                   | 0023                                  | 14676             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0020      | 0274  | 3295  | 2629    | 0017375                                   | 0042                                  | 14590             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 120                        |             | OBS          | 0020      | 0274  | 32948 | 2629    |   |                                       | 14590             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0030      | -0060 | 3315  | 2666    | 0013862                                   | 0058                                  | 14444             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 120                        |             | OBS          | 0035      | -0132 | 33258 | 2677    |   |                                       | 14413             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 120                        |             | OBS          | 0037      | -0143 | 33300 | 2681    |   |                                       | 14409             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0050      | -0117 | 3340  | 2688    | 0011741                                   | 0083                                  | 14425             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0075      | -0077 | 3359  | 2702    | 0010412                                   | 0111                                  | 14450             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 120                        |             | OBS          | 0095      | -0056 | 33715 | 2712    |   |                                       | 14465             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0100      | -0055 | 3374  | 2714    | 0009343                                   | 0136                                  | 14467             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0125      | -0051 | 3387  | 2724    | 0008360                                   | 0158                                  | 14474             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0150      | -0047 | 3399  | 2734    | 0007441                                   | 0177                                  | 14482             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 120                        |             | OBS          | 0150      | -0047 | 33992 | 2734    |   |                                       | 14482             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0200      | 0137  | 3424  | 2743    | 0006666                                   | 0213                                  | 14577             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 120                        |             | OBS          | 0200      | 0137  | 34235 | 2743    |   |                                       | 14577             |                     |                                 |                      |                                 |                                 |                                   |    |         |
|                            |             | STD          | 0250      | 0250  | 3452  | 2757    | 0005428                                   | 0243                                  | 14639             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 120                        |             | OBS          | T0251     | 0255  | 34539 | 2758    |   |                                       | 14642             |                     |                                 |                      |                                 |                                 |                                   |    |         |
| 120                        |             | OBS          | 0265      | 0342  | 34779 | 2769    |   |                                       | 14685             |                     |                                 |                      |                                 |                                 |                                   |    |         |

| REFERENCE                  |               | SHIP<br>CODE | LATITUDE<br>1/10    | LONGITUDE<br>1/10      | NODC<br>STATION<br>NUMBER | HARBOR<br>SQUARE |                                | STATION TIME<br>(GMT)                 |                         | YEAR                | ORIGINATOR'S                    |                      | DEPTH<br>TO<br>BOTTOM           | WAVE<br>OBSERVATIONS            | WEA-<br>THER<br>CODE              | CLOUD<br>CODES | NODC<br>STATION<br>NUMBER |
|----------------------------|---------------|--------------|---------------------|------------------------|---------------------------|------------------|--------------------------------|---------------------------------------|-------------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----------------|---------------------------|
| CRUISE<br>NO.              | IO<br>NO.     |              |                     |                        |                           | 10°              | 1°                             | MO                                    | DAY                     |                     | CRUISE<br>NO.                   | STATION<br>NUMBER    |                                 |                                 |                                   |                |                           |
| 311260                     | EV            |              | 52217N              | 052230W                |                           | 186              | 22                             | 07                                    | 26                      | 1968                | 11P                             | 10365                | 0275                            | 03                              | 33                                | 2 2            | 0042                      |
| WAVE                       |               | WIND         |                     | BARO-<br>METER<br>(mb) | AIR TEMP. °C              |                  | VIR<br>CODE                    | NO.<br>OBS.<br>DEPTH                  | SPECIAL<br>OBSERVATIONS |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| COLOR<br>CODE              | TRANS.<br>(m) | DIR.         | SPED<br>OR<br>FORCE |                        | DRY<br>BULB               | WET<br>BULB      |                                |                                       |                         |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               |              |                     | 33                     | 504                       | 122              | 094                            | 083                                   | 8 10                    |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO.   | CARD<br>TYPE | DEPTH (m)           | T °C                   | S ‰                       | SIGMA-T          | SPECIFIC VOLUME<br>ANOMALY-20° | Σ Δ ρ<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY       | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH             | S<br>C<br>C               |
|                            |               | STD          | 0000                | 0681                   | 3250                      | 2550             | 0024954                        | 0000                                  | 14750                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 135                        |               | OBS          | 0000                | 0681                   | 32495                     | 2550             |                                |                                       | 14750                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0010                | 0558                   | 3272                      | 2583             | 0021821                        | 0023                                  | 14705                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 135                        |               | OBS          | 0015                | 0477                   | 32834                     | 2601             |                                |                                       | 14674                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0020                | 0334                   | 3296                      | 2625             | 0017786                        | 0043                                  | 14616                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0030                | 0103                   | 3318                      | 2660             | 0014425                        | 0059                                  | 14519                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 135                        |               | OBS          | 0035                | 0016                   | 33272                     | 2673             |                                |                                       | 14482                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0050                | -0070                  | 3340                      | 2687             | 0011902                        | 0086                                  | 14447                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 135                        |               | OBS          | 0065                | -0111                  | 33511                     | 2697             |                                |                                       | 14432                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0075                | -0093                  | 3358                      | 2702             | 0010430                        | 0114                                  | 14443                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 135                        |               | OBS          | 0095                | -0056                  | 33697                     | 2710             |                                |                                       | 14465                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0100                | -0048                  | 3372                      | 2712             | 0009526                        | 0138                                  | 14470                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0125                | 0005                   | 3386                      | 2720             | 0008717                        | 0161                                  | 14500                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 135                        |               | OBS          | 0125                | 0005                   | 33858                     | 2720             |                                |                                       | 14500                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0150                | 0076                   | 3405                      | 2732             | 0007656                        | 0182                                  | 14539                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 135                        |               | OBS          | 0150                | 0076                   | 34050                     | 2732             |                                |                                       | 14539                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 135                        |               | OBS          | 0160                | 0069                   | 34080                     | 2735             |                                |                                       | 14538                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 135                        |               | OBS          | 0190                | 0120                   | 34226                     | 2743             |                                |                                       | 14568                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0200                | 0144                   | 3429                      | 2747             | 0006300                        | 0217                                  | 14581                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0250                | 0311                   | 3468                      | 2764             | 0004777                        | 0244                                  | 14668                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 135                        |               | OBS          | T0251               | 0315                   | 34694                     | 2765             |                                |                                       | 14670                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |

| REFERENCE                  |               | SHIP<br>CODE | LATITUDE<br>1/10    | LONGITUDE<br>1/10      | NODC<br>STATION<br>NUMBER | HARBOR<br>SQUARE |                                | STATION TIME<br>(GMT)                 |                         | YEAR                | ORIGINATOR'S                    |                      | DEPTH<br>TO<br>BOTTOM           | WAVE<br>OBSERVATIONS            | WEA-<br>THER<br>CODE              | CLOUD<br>CODES | NODC<br>STATION<br>NUMBER |
|----------------------------|---------------|--------------|---------------------|------------------------|---------------------------|------------------|--------------------------------|---------------------------------------|-------------------------|---------------------|---------------------------------|----------------------|---------------------------------|---------------------------------|-----------------------------------|----------------|---------------------------|
| CRUISE<br>NO.              | IO<br>NO.     |              |                     |                        |                           | 10°              | 1°                             | MO                                    | DAY                     |                     | HR                              | MIN                  |                                 |                                 |                                   |                |                           |
| 311260                     | EV            |              | 52177N              | 052401W                |                           | 186              | 22                             | 07                                    | 26                      | 1968                | 11P                             | 10366                | 0280                            | 03                              | 34                                | 2 3            | 0043                      |
| WAVE                       |               | WIND         |                     | BARO-<br>METER<br>(mb) | AIR TEMP. °C              |                  | VIR<br>CODE                    | NO.<br>OBS.<br>DEPTHS                 | SPECIAL<br>OBSERVATIONS |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| COLOR<br>CODE              | TRANS.<br>(m) | DIR.         | SPED<br>OR<br>FORCE |                        | DRY<br>BULB               | WET<br>BULB      |                                |                                       |                         |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               |              |                     | 33                     | 511                       | 122              | 106                            | 083                                   | 8                       | 08                  |                                 |                      |                                 |                                 |                                   |                |                           |
| MESSNGR<br>TIME<br>HR 1/10 | CAST<br>NO.   | CARD<br>TYPE | DEPTH (m)           | T °C                   | S ‰                       | SIGMA-T          | SPECIFIC VOLUME<br>ANOMALY-20° | Σ Δ ρ<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY       | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | pH             |                           |
|                            |               | STD          | 0000                | 0738                   | 3262                      | 2552             | 0024730                        | 0000                                  | 14774                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 150                        |               | OBS          | 0000                | 0738                   | 32623                     | 2552             |                                |                                       | 14774                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0010                | 0590                   | 3266                      | 2574             | 0022636                        | 0024                                  | 14717                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0020                | 0429                   | 3276                      | 2600             | 0020173                        | 0045                                  | 14654                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 150                        |               | OBS          | 0022                | 0396                   | 32783                     | 2605             |                                |                                       | 14641                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0030                | 0209                   | 3301                      | 2640             | 0016414                        | 0063                                  | 14564                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0050                | -0123                  | 3343                      | 2691             | 0011485                        | 0091                                  | 14422                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 150                        |               | OBS          | 0050                | -0123                  | 33431                     | 2691             |                                |                                       | 14422                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0075                | -0113                  | 3353                      | 2699             | 0010746                        | 0119                                  | 14433                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0100                | -0102                  | 3365                      | 2708             | 0009850                        | 0145                                  | 14443                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 150                        |               | OBS          | 0100                | -0102                  | 33650                     | 2708             |                                |                                       | 14443                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0125                | -0044                  | 3380                      | 2718             | 0008926                        | 0168                                  | 14477                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0150                | 0007                   | 3393                      | 2726             | 0008183                        | 0190                                  | 14506                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 150                        |               | OBS          | 0150                | 0007                   | 33929                     | 2726             |                                |                                       | 14506                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0200                | 0087                   | 3415                      | 2739             | 0006971                        | 0228                                  | 14554                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 150                        |               | OBS          | 0210                | 0103                   | 34192                     | 2742             |                                |                                       | 14563                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
|                            |               | STD          | 0250                | 0168                   | 3433                      | 2748             | 0006214                        | 0261                                  | 14601                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 150                        |               | OBS          | 0250                | 0168                   | 34327                     | 2748             |                                |                                       | 14601                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |
| 150                        |               | OBS          | 0260                | 0219                   | 34429                     | 2752             |                                |                                       | 14626                   |                     |                                 |                      |                                 |                                 |                                   |                |                           |



| REFERENCE                  |             | SHIP<br>CODE | LATITUDE<br>1°/10 | LONGITUDE<br>1°/10 | DEPTH<br>METER | MARSEN<br>SQUARE |   | STATION TIME<br>(GMT) |                                       | YEAR              | ORIGINATOR'S        |                                 | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPL'S  | WAVE<br>OBSERVATIONS            |                                   |     |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |    | NODC<br>STATION<br>NUMBER |      |      |  |  |  |  |  |  |  |
|----------------------------|-------------|--------------|-------------------|--------------------|----------------|------------------|---|-----------------------|---------------------------------------|-------------------|---------------------|---------------------------------|-----------------------|---------------------------------|---------------------------------|-----------------------------------|-----|-----|----------------------|----------------|----|---------------------------|------|------|--|--|--|--|--|--|--|
| CIRCUIT<br>NO.             | IO.<br>NO.  |              |                   |                    |                | 10"              | 1"  | M                     | O                                     |                   | CRUISE<br>NO.       | STATION<br>NUMBER               |                       |                                 |                                 | DR                                | HGT | PER |                      | SEA            |    |                           | TYPE | AMT  |  |  |  |  |  |  |  |
|                            |             |              |                   |                    |                | 10"              | 1"  | M                     | O                                     |                   |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
| 311260                     | EV          |              | 52132N            | 052538W            |                | 186              | 22  | 07                    | 26                                    | 1968              | 11P                 | 10367                           |                       | 0252                            | 02                              | 32                                | 2   | 2   |                      |                | X1 | 7                         | 6    | 0044 |  |  |  |  |  |  |  |
|                            |             |              |                   |                    |                | WATER            |   | WIND                  |                                       | BARO-<br>METER    |                     | AIR TEMP. °C                    |                       | VIS.<br>CODE                    | NO.<br>OBS.<br>DEPTHS           | SPECIAL<br>OBSERVATIONS           |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             |              |                   |                    |                | COLOR<br>CODE    | TRANS.<br>(m)                             | DIR.                  | SPEED<br>OF<br>FORCE                  | DRY<br>BULB       | WET<br>BULB         | DRY<br>BULB                     | WET<br>BULB           |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             |              |                   |                    |                |                  |   |                       | 33                                    | 514               | 108                 | 094                             | 083                   | 7                               | 08                              |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m)         | T °C               | S ‰            | SIGMA-T          | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> |                       | Σ Δ σ<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l  | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>4</sub> -Si<br>μg - ml/l | PH  |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             | STD          | 0000              | 0711               | 3269           | 2561             | 0023908                                   |                       | 0000                                  | 14764             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            | 165         | OBS          | 0000              | 0711               | 32686          | 2561             |   |                       |                                       | 14764             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             | STD          | 0010              | 0674               | 3270           | 2566             | 0023382                                   |                       | 0024                                  | 14752             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             | STD          | 0020              | 0637               | 3270           | 2572             | 0022870                                   |                       | 0047                                  | 14738             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            | 165         | OBS          | 0025              | 0618               | 32708          | 2574             |   |                       |                                       | 14732             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             | STD          | 0030              | 0438               | 3291           | 2611             | 0019141                                   |                       | 0068                                  | 14661             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             | STD          | 0050              | -0033              | 3350           | 2693             | 0011287                                   |                       | 0098                                  | 14465             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            | 165         | OBS          | 0050              | -0033              | 33500          | 2693             |   |                       |                                       | 14465             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             | STD          | 0075              | -0063              | 3369           | 2710             | 0009687                                   |                       | 0124                                  | 14458             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            | 165         | OBS          | 0075              | -0063              | 33692          | 2710             |   |                       |                                       | 14458             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             | STD          | 0100              | -0019              | 3384           | 2720             | 0008726                                   |                       | 0147                                  | 14485             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            | 165         | OBS          | 0100              | -0019              | 33842          | 2720             |   |                       |                                       | 14485             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             | STD          | 0125              | 0032               | 3397           | 2728             | 0008008                                   |                       | 0168                                  | 14514             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             | STD          | 0150              | 0076               | 3409           | 2735             | 0007345                                   |                       | 0188                                  | 14540             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            | 165         | OBS          | 0150              | 0076               | 34091          | 2735             |   |                       |                                       | 14540             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            | 165         | OBS          | T0199             | 0142               | 34292          | 2747             |   |                       |                                       | 14580             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            |             | STD          | 0200              | 0144               | 3430           | 2747             | 0006225                                   |                       | 0221                                  | 14581             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |
|                            | 165         | OBS          | T0237             | 0204               | 34431          | 2753             |   |                       |                                       | 14616             |                     |                                 |                       |                                 |                                 |                                   |     |     |                      |                |    |                           |      |      |  |  |  |  |  |  |  |

| REFERENCE                  |             | SHIP<br>CODE | LATITUDE<br>" 1/10 | LONGITUDE<br>" 1/10 | DEPTH<br>METER | MARSEN<br>SQUARE |   | STATION TIME<br>IGMT |                                       | YEAR              | ORIGINATOR'S        |                                 | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>SAMPL'S  | WAVE<br>OBSERVATIONS            |                                    |     |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |  | NODC<br>STATION<br>NUMBER |      |     |  |      |  |  |  |  |  |
|----------------------------|-------------|--------------|--------------------|---------------------|----------------|------------------|---|----------------------|---------------------------------------|-------------------|---------------------|---------------------------------|-----------------------|---------------------------------|---------------------------------|------------------------------------|-----|-----|----------------------|----------------|--|---------------------------|------|-----|--|------|--|--|--|--|--|
| CIRCUIT<br>NO.             | IO.<br>NO.  |              |                    |                     |                | 10"              | 1"  | M                    | O                                     |                   | CRUISE<br>NO.       | STATION<br>NUMBER               |                       |                                 |                                 | DIR.                               | HGT | PER |                      | SEA            |  |                           | TYPE | AMT |  |      |  |  |  |  |  |
|                            |             |              |                    |                     |                | 10"              | 1"  | M                    | O                                     |                   |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
| 311260                     | EV          |              | 52084N             | 053086W             |                | 186              | 23  | 07                   | 26                                    | 184               | 1968                | 11P                             | 10368                 |                                 | 0232                            | 1                                  | 34  | 2   | 3                    |                |  | X1                        | 7    | 7   |  | 0045 |  |  |  |  |  |
|                            |             |              |                    |                     |                | WATER            |   | WIND                 |                                       | BARO-<br>METER    |                     | AIR TEMP. °C                    |                       | VIS.<br>CODE                    | NO.<br>OBS.<br>DEPTHS           | SPECIAL<br>OBSERVATIONS            |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             |              |                    |                     |                | COLOR<br>CODE    | TRANS.<br>(m)                             | DIR.                 | SPEED<br>OR<br>FORCE                  | DRY<br>BULB       | WET<br>BULB         | DRY<br>BULB                     | WET<br>BULB           |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             |              |                    |                     |                |                  |   |                      | 33                                    | 512               | 108                 | 094                             | 083                   | 8                               | 08                              |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
| MESSAGE<br>TIME<br>HR 1/10 | CAST<br>NO. | CARD<br>TYPE | DEPTH (m)          | T °C                | S ‰            | SIGMA-T          | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> |                      | Σ Δ σ<br>DYN. M.<br>x 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l  | NO <sub>3</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | Si O <sub>4</sub> -Si<br>μg - ml/l | PH  |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             | STD          | 0000               | 0729                | 3250           | 2544             | 0025507                                   |                      | 0000                                  | 14769             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            | 184         | OBS          | 0000               | 0729                | 32504          | 2544             |   |                      |                                       | 14769             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             | STD          | 0010               | 0659                | 3250           | 2553             | 0024676                                   |                      | 0025                                  | 14743             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            | 184         | OBS          | 0010               | 0659                | 32498          | 2553             |   |                      |                                       | 14743             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             | STD          | 0020               | 0421                | 3265           | 2592             | 0020943                                   |                      | 0047                                  | 14649             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             | STD          | 0030               | 0212                | 3283           | 2625             | 0017793                                   |                      | 0067                                  | 14563             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            | 184         | OBS          | 0030               | 0212                | 32831          | 2625             |   |                      |                                       | 14563             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             | STD          | 0050               | -0121               | 3331           | 2681             | 0012416                                   |                      | 0097                                  | 14421             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            | 184         | OBS          | 0051               | -0129               | 33328          | 2683             |   |                      |                                       | 14418             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            | 184         | OBS          | 0071               | -0108               | 33522          | 2698             |   |                      |                                       | 14434             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             | STD          | 0075               | -0100               | 3354           | 2699             | 0010717                                   |                      | 0126                                  | 14439             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             | STD          | 0100               | -0049               | 3367           | 2707             | 0009934                                   |                      | 0152                                  | 14468             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            | 184         | OBS          | 0100               | -0049               | 33667          | 2707             |   |                      |                                       | 14468             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             | STD          | 0125               | -0005               | 3382           | 2718             | 0008922                                   |                      | 0175                                  | 14495             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            | 184         | OBS          | T0149              | 0049                | 33984          | 2728             |   |                      |                                       | 14526             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             | STD          | 0150               | 0052                | 3399           | 2729             | 0007959                                   |                      | 0196                                  | 14527             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            |             | STD          | 0200               | 0205                | 3435           | 2747             | 0006313                                   |                      | 0232                                  | 14609             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |
|                            | 184         | OBS          | T0210              | 0242                | 34426          | 2750             |   |                      |                                       | 14628             |                     |                                 |                       |                                 |                                 |                                    |     |     |                      |                |  |                           |      |     |  |      |  |  |  |  |  |

| REFERENCE                  |              | SHIP<br>CODE  | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | W/RSOEN<br>SQUARE    | STATION TIME<br>IGMTI |   |                                       | YEAR              | ORIGINATOR'S        |                                 | DEPTH<br>TO<br>BOTTOM | MAR.<br>DEPTH<br>OF<br>S'AMPL'S | WAVE<br>OBSERVATIONS            |                                   |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |      | NODC<br>STATION<br>NUMBER |      |
|----------------------------|--------------|---------------|------------------|-------------------|----------------------|-----------------------|---|---------------------------------------|-------------------|---------------------|---------------------------------|-----------------------|---------------------------------|---------------------------------|-----------------------------------|-----|----------------------|----------------|------|---------------------------|------|
| CTRY<br>NO.                | ID.<br>NO.   |               |                  |                   |                      | 10°                   | 1°  | MO DAY HR.1/10                        |                   | CRUISE<br>NO.       | STATION<br>NUMBER               |                       |                                 | DIR                             | HGT                               | PER |                      | SEA            | TYPE |                           | AMT  |
| 311260                     | EV           | 52035N        | 053200W          | 186               | 23                   | 07                    | 26  | 199                                   | 1968              | 11P                 | 10369                           | 0320                  | 03                              | 34                              | 2                                 | 2   |                      | X1             | 3    | 7                         | 0046 |
|                            |              | WAVE          |                  | WIND              |                      | BARO-<br>METER        |   | AIR TEMP. °C                          |                   | VIS<br>CODE         |                                 | NO.<br>OBS.<br>DEPTHS |                                 | SPECIAL<br>OBSERVATIONS         |                                   |     |                      |                |      |                           |      |
|                            |              | COLOR<br>CODE | SEAS<br>(m)      | DIR               | SPEED<br>OR<br>FORCE | DRY<br>BULB           | WET<br>BULB                               | DRY<br>BULB                           | WET<br>BULB       |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              |               |                  |                   |                      | 33                    | 514                                       | 108                                   | 089               | 075                 | 7                               | 09                    |                                 |                                 |                                   |     |                      |                |      |                           |      |
| MESSAGE<br>TIME<br>HR 1/10 | CASST<br>NO. | CARD<br>TYPE  | DEPTH (m)        | T °C              | S ‰                  | SIGMA-T               | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> | Σ Δ D<br>DYN. M.<br>E 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>2</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l  | NO <sub>2</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>2</sub> -Si<br>μg - ml/l | pH  | T<br>C<br>C          |                |      |                           |      |
|                            |              | STD           | 0000             | 0738              | 3235                 | 2531                  | 0026751                                   | 0000                                  | 14771             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
| 199                        |              | OBS           | 0000             | 0738              | 32352                | 2531                  |   |                                       | 14771             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              | STD           | 0010             | 0657              | 3230                 | 2537                  | 0026135                                   | 0026                                  | 14740             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
| 199                        |              | OBS           | 0010             | 0657              | 32299                | 2537                  |   |                                       | 14740             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              | STD           | 0020             | 0598              | 3238                 | 2551                  | 0024837                                   | 0052                                  | 14719             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
| 199                        |              | OBS           | 0021             | 0577              | 32407                | 2556                  |   |                                       | 14711             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              | STD           | 0030             | 0173              | 3289                 | 2633                  | 0017072                                   | 0073                                  | 14547             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
| 199                        |              | OBS           | 0034             | 0052              | 33044                | 2652                  |   |                                       | 14495             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              | STD           | 0050             | -0068             | 3335                 | 2683                  | 0012285                                   | 0102                                  | 14447             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
| 199                        |              | OBS           | 0050             | -0068             | 33351                | 2683                  |   |                                       | 14447             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              | STD           | 0075             | -0077             | 3354                 | 2698                  | 0010795                                   | 0131                                  | 14450             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
| 199                        |              | OBS           | 0098             | -0085             | 33685                | 2710                  |   |                                       | 14452             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              | STD           | 0100             | -0083             | 3369                 | 2711                  | 0009614                                   | 0157                                  | 14453             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              | STD           | 0125             | -0050             | 3379                 | 2717                  | 0008975                                   | 0180                                  | 14474             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
| 199                        |              | OBS           | T0148            | -0001             | 33909                | 2725                  |   |                                       | 14502             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              | STD           | 0150             | 0007              | 3392                 | 2725                  | 0008252                                   | 0201                                  | 14506             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
| 199                        |              | OBS           | T0196            | 0159              | 34239                | 2742                  |   |                                       | 14586             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              | STD           | 0200             | 0170              | 3426                 | 2742                  | 0006718                                   | 0239                                  | 14592             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              | STD           | 0250             | 0268              | 3450                 | 2754                  | 0005736                                   | 0270                                  | 14647             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
|                            |              | STD           | 0300             | 0303              | 3464                 | 2762                  | 0005038                                   | 0297                                  | 14672             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |
| 199                        |              | OBS           | T0306            | 0303              | 34648                | 2762                  |   |                                       | 14673             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |      |

| REFERENCE                  |              | SHIP<br>CODE  | LATITUDE<br>1/10 | LONGITUDE<br>1/10 | W/RSOEN<br>SQUARE    | STATION TIME<br>IGMTI |   |                                       | YEAR              | ORIGINATOR'S        |                                 | DEPTH<br>TO<br>BOTTOM | MAR.<br>DEPTH<br>OF<br>SAMPL'S  | WAVE<br>OBSERVATIONS            |                                   |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |      | NODC<br>STATION<br>NUMBER |     |
|----------------------------|--------------|---------------|------------------|-------------------|----------------------|-----------------------|---|---------------------------------------|-------------------|---------------------|---------------------------------|-----------------------|---------------------------------|---------------------------------|-----------------------------------|-----|----------------------|----------------|------|---------------------------|-----|
| CTRY<br>NO.                | ID.<br>NO.   |               |                  |                   |                      | 10°                   | 1°  | MO DAY HR.1/10                        |                   | CRUISE<br>NO.       | STATION<br>NUMBER               |                       |                                 | DIR                             | HGT                               | PER |                      | SEA            | TYPE |                           | AMT |
| 311260                     | EV           | 51586N        | 053329W          | 186               | 13                   | 07 26                 | 216                                       | 1968                                  | 11P               | 10370               | 0380                            | 03                    | 34                              | 2                               | 2                                 |     | X1                   | 3              | 6    | 0047                      |     |
|                            |              | WAVE          |                  | WIND              |                      | BARO-<br>METER        |   | AIR TEMP. °C                          |                   | VIS<br>CODE         |                                 | NO.<br>OBS.<br>DEPTHS |                                 | SPECIAL<br>OBSERVATIONS         |                                   |     |                      |                |      |                           |     |
|                            |              | COLOR<br>CODE | SEAS<br>(m)      | DIR               | SPEED<br>OR<br>FORCE | DRY<br>BULB           | WET<br>BULB                               | DRY<br>BULB                           | WET<br>BULB       |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              |               |                  |                   |                      | 33                    | 512                                       | 115                                   | 089               | 078                 | 7                               | 09                    |                                 |                                 |                                   |     |                      |                |      |                           |     |
| MESSAGE<br>TIME<br>HR 1/10 | CASST<br>NO. | CARD<br>TYPE  | DEPTH (m)        | T °C              | S ‰                  | SIGMA-T               | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> | Σ Δ D<br>DYN. M.<br>E 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>2</sub> -P<br>μg - ml/l | TOTAL-P<br>μg - ml/l  | NO <sub>2</sub> -N<br>μg - ml/l | NO <sub>3</sub> -N<br>μg - ml/l | SiO <sub>2</sub> -Si<br>μg - ml/l | pH  | 1<br>C<br>C          |                |      |                           |     |
|                            |              | STD           | 0000             | 0747              | 3264                 | 2552                  | 0024736                                   | 0000                                  | 14778             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
| 216                        |              | OBS           | 0000             | 0747              | 32638                | 2552                  |   |                                       | 14778             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              | STD           | 0010             | 0662              | 3231                 | 2537                  | 0026151                                   | 0025                                  | 14742             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
| 216                        |              | OBS           | 0010             | 0662              | 32305                | 2537                  |   |                                       | 14742             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              | STD           | 0020             | 0587              | 3244                 | 2557                  | 0024252                                   | 0051                                  | 14715             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
| 216                        |              | OBS           | 0020             | 0587              | 32441                | 2557                  |   |                                       | 14715             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              | STD           | 0030             | 0166              | 3284                 | 2629                  | 0017405                                   | 0071                                  | 14543             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
| 216                        |              | OBS           | 0040             | -0129             | 33129                | 2667                  |   |                                       | 14414             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              | STD           | 0050             | -0145             | 3317                 | 2671                  | 0013425                                   | 0102                                  | 14408             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              | STD           | 0075             | -0162             | 3329                 | 2681                  | 0012442                                   | 0135                                  | 14406             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
| 216                        |              | OBS           | 0075             | -0162             | 33290                | 2681                  |   |                                       | 14406             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              | STD           | 0100             | -0099             | 3351                 | 2697                  | 0010932                                   | 0164                                  | 14443             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              | STD           | 0125             | -0048             | 3370                 | 2710                  | 0009671                                   | 0190                                  | 14473             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              | STD           | 0150             | -0011             | 3385                 | 2720                  | 0008731                                   | 0213                                  | 14497             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
| 216                        |              | OBS           | 0150             | -0011             | 33845                | 2720                  |   |                                       | 14497             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
| 216                        |              | OBS           | T0178            | 0015              | 33962                | 2728                  |   |                                       | 14515             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              | STD           | 0200             | 0104              | 3413                 | 2737                  | 0007234                                   | 0253                                  | 14561             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              | STD           | 0250             | 0247              | 3443                 | 2750                  | 0006079                                   | 0286                                  | 14637             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
| 216                        |              | OBS           | T0258            | 0262              | 34471                | 2752                  |   |                                       | 14645             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
|                            |              | STD           | 0300             | 0287              | 3461                 | 2761                  | 0005110                                   | 0314                                  | 14664             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |
| 216                        |              | OBS           | T0333            | 0306              | 34648                | 2762                  |   |                                       | 14679             |                     |                                 |                       |                                 |                                 |                                   |     |                      |                |      |                           |     |



| REFERENCE    |            | SHIP<br>CODE | LATITUDE<br>° 1/10 | LONGITUDE<br>° 1/10 | W. R. S. O. N.<br>SQUARE | STATION TIME<br>(GMT) |    |                | YEAR | ORIGINATOR'S  |                   | DEPTH<br>TO<br>BOTTOM | MAX.<br>DEPTH<br>OF<br>S. W. P. L. S. | WAVE<br>OBSERVATIONS |    |     | WEA-<br>THER<br>CODE | CLOUD<br>CODES |      | NO. C.<br>STATION<br>NUMBER |
|--------------|------------|--------------|--------------------|---------------------|--------------------------|-----------------------|----|----------------|------|---------------|-------------------|-----------------------|---------------------------------------|----------------------|----|-----|----------------------|----------------|------|-----------------------------|
| CTRY<br>CODE | IO.<br>NO. |              |                    |                     |                          | 10°                   | 1° | MO DAY HR.1/10 |      | CRUISE<br>NO. | STATION<br>NUMBER |                       |                                       | DR                   | HG | PER |                      | SEA            | TYPE |                             |
| 311260       | EV         | 51538N       | 053454W            | 186                 | 13                       | 07                    | 26 | 231            | 1968 | IIP           | 10371             | 0417                  | 04                                    | 34                   | 2  | 2   | X1                   | 4              | 2    | 0049                        |

|        |    |        |         |     |    |    |    |     |      |     |       |      |    |    |   |   |  |    |   |   |      |
|--------|----|--------|---------|-----|----|----|----|-----|------|-----|-------|------|----|----|---|---|--|----|---|---|------|
| 311260 | EV | 51538N | 053454W | 186 | 13 | 07 | 26 | 231 | 1968 | 11P | 10371 | 0417 | 04 | 34 | 2 | 2 |  | X1 | 4 | 2 | 0048 |
|--------|----|--------|---------|-----|----|----|----|-----|------|-----|-------|------|----|----|---|---|--|----|---|---|------|

| W. A. R.      |              | WIND |                      | BARO-<br>METER<br>(mb) | AIR TEMP. °C |             | VIL<br>CODE | NO.<br>OBS.<br>DEPTH | SPECIAL<br>OBSERVATIONS |
|---------------|--------------|------|----------------------|------------------------|--------------|-------------|-------------|----------------------|-------------------------|
| COLOR<br>CODE | TEMP<br>(°C) | DIR  | SPEED<br>OF<br>FORCE |                        | DRY<br>BULB  | WET<br>BULB |             |                      |                         |

|  |  |  |  |    |     |     |     |     |   |    |  |
|--|--|--|--|----|-----|-----|-----|-----|---|----|--|
|  |  |  |  | 28 | 510 | 122 | 083 | 078 | 7 | 09 |  |
|--|--|--|--|----|-----|-----|-----|-----|---|----|--|

| MESSAGE<br>TIME<br>HR 1/10 | CASST<br>NO. | CARD<br>TYPE | DEPTH (m) | T °C  | S ‰   | SIGMA-T | SPECIFIC VOLUME<br>ANOMALY-σ <sub>t</sub> | Σ Δ O<br>OTN. M.<br>Σ 10 <sup>3</sup> | SOUND<br>VELOCITY | O <sub>2</sub> ml/l | PO <sub>4</sub> -P<br>μg · g <sup>-1</sup> l <sup>-1</sup> | TOTAL-P<br>μg · g <sup>-1</sup> l <sup>-1</sup> | NO <sub>3</sub> -N<br>μg · g <sup>-1</sup> l <sup>-1</sup> | NO <sub>3</sub> -N<br>μg · g <sup>-1</sup> l <sup>-1</sup> | SIG <sub>4</sub> -S<br>μg · g <sup>-1</sup> l <sup>-1</sup> | pH | S<br>C |
|----------------------------|--------------|--------------|-----------|-------|-------|---------|---|---------------------------------------|-------------------|---------------------|--|---|--|--|---|----|--------|
|                            |              | STO          | 0000      | 0764  | 3245  | 2534    | 0026394                                   | 0000                                  | 14782             |                     |  |   |  |  |   |    |        |
| 231                        |              | OBS          | 0000      | 0764  | 32446 | 2534    |   |                                       | 14782             |                     |  |   |  |  |   |    |        |
|                            |              | STD          | 0010      | 0571  | 3253  | 2566    | 0023362                                   | 0025                                  | 14708             |                     |  |   |  |  |   |    |        |
|                            |              | STO          | 0020      | 0342  | 3262  | 2598    | 0020400                                   | 0047                                  | 14615             |                     |  |   |  |  |   |    |        |
| 231                        |              | OBS          | 0025      | 0214  | 32667 | 2612    |   |                                       | 14561             |                     |  |   |  |  |   |    |        |
|                            |              | STD          | 0030      | 0050  | 3287  | 2639    | 0016491                                   | 0065                                  | 14491             |                     |  |   |  |  |   |    |        |
| 231                        |              | OBS          | 0035      | -0070 | 33035 | 2657    |   |                                       | 14439             |                     |  |   |  |  |   |    |        |
|                            |              | STD          | 0050      | -0162 | 3323  | 2676    | 0012921                                   | 0095                                  | 14401             |                     |  |   |  |  |   |    |        |
| 231                        |              | OBS          | 0050      | -0162 | 33230 | 2676    |   |                                       | 14401             |                     |  |   |  |  |   |    |        |
|                            |              | STO          | 0075      | -0133 | 3343  | 2691    | 0011448                                   | 0125                                  | 14422             |                     |  |   |  |  |   |    |        |
|                            |              | STO          | 0100      | -0102 | 3359  | 2704    | 0010279                                   | 0152                                  | 14443             |                     |  |   |  |  |   |    |        |
| 231                        |              | OBS          | 0100      | -0102 | 33594 | 2704    |   |                                       | 14443             |                     |  |   |  |  |   |    |        |
|                            |              | STD          | 0125      | -0080 | 3370  | 2711    | 0009539                                   | 0177                                  | 14459             |                     |  |   |  |  |   |    |        |
|                            |              | STO          | 0150      | -0036 | 3383  | 2720    | 0008741                                   | 0200                                  | 14485             |                     |  |   |  |  |   |    |        |
| 231                        |              | OBS          | 0150      | -0036 | 33828 | 2720    |   |                                       | 14485             |                     |  |   |  |  |   |    |        |
|                            |              | STD          | 0200      | 0118  | 3414  | 2736    | 0007290                                   | 0240                                  | 14567             |                     |  |   |  |  |   |    |        |
| 231                        |              | OBS          | 0200      | 0118  | 34135 | 2736    |   |                                       | 14567             |                     |  |   |  |  |   |    |        |
|                            |              | STO          | 0250      | 0223  | 3436  | 2746    | 0006403                                   | 0274                                  | 14625             |                     |  |   |  |  |   |    |        |
|                            |              | STO          | 0300      | 0295  | 3452  | 2753    | 0005863                                   | 0305                                  | 14667             |                     |  |   |  |  |   |    |        |
| 231                        |              | OBS          | T0308     | 0304  | 34545 | 2754    |   |                                       | 14672             |                     |  |   |  |  |   |    |        |
|                            |              | STO          | 0400      | 0338  | 3468  | 2761    | 0005165                                   | 0360                                  | 14704             |                     |  |   |  |  |   |    |        |
| 231                        |              | OBS          | T0407     | 0340  | 34688 | 2762    |   |                                       | 14706             |                     |  |   |  |  |   |    |        |



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